IRM-U06ID RDU-A Intelligent Monitoring Unit

User Manual

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Chapter 1 Introduction

IRM-U061D RDU-A intelligent monitoring unit (RDU-A for short) supplies flexible monitoring solutions for data centers.

This chapter expounds characteristics, component descriptions, main functions and technical specifications of RDU-A.

1.1 Characteristics

RDU-A has the following characteristics:

- Supporting connection of intelligent sensor modules from our company
- Supporting connection of equipment from our company and third party for extension
- Supporting online adding, deleting and modifying equipment
- Supplying notifying function of alarm in real time, and reminding users timely
- Supporting SNMP protocol to connect intelligent equipment for extension
- Having simple programmable logic controller function to map alarms
- Supporting remote service function
- Supporting AC teamwork function

1.2 Component Descriptions

RDU-A includes RDU-A host, power module IRM-U061DR1 (power module for short) and IRM-E04COM board (optional).

1.2.1 RDU-A Host

The appearance and interfaces of RDU-A host are shown in Figure 1-1.

Front view

1．Indicators *2．PE* *3．Power port* *4．Network port* *5．Console port*

6．USB port *7．Relay output port 2* *8．Relay output port 1* *9．Expansion slot* *10．Door status 1 port*

11．Door status 2 port *12．Smoke port* *13．Sensor port* *14．COM 2* *15．COM 3*

16．COM 1 *17．Water port*

Rear view

Figure 1-1 Appearance and interface

Indicators

There are two indicators on the front panel of the RDU-A host, as shown in Figure 1-1. See Table 1-1 for their definitions.

Table 1-1 Definition of Indicators in the front panel

Silk print	Definition	Color	Status	Definition
POWER	Power indicator	Green	On	The RDU-A host is powered on
			Off	The RDU-A host is powered off
ALARM	Alarm indicator	Red	On	Critical alarm
			Off	No alarm
			Blinking slowly (about 0.5Hz)	Observation alarm
			Blinking quickly (about 4Hz)	Major alarm

There are nine indicators on the rear panel of the RDU-A host, of which two indicators are reserved. Their positions are shown in Figure 1-1. See Table 1-2 for their definitions.

Table 1-2 Definition of Indicators in the rear panel

Silk print	Definition	Color	Status	Definition
POWER	Power indicator	Green	On	The RDU-A host is powered on
			Off	The RDU-A host is powered off
ALARM	Alarm indicator	Red	On	Critical alarm
			Off	No alarm
			Blinking slowly (about 0.5Hz)	Observation alarm
			Blinking quickly (about 4Hz)	Major alarm
SLOT	Slot indicator	Green	On	The board inside the slot is normal
			Off	No board is inside the slot or the inside board is abnormal
			Blinking quickly (about 4Hz)	Detecting the board status automatically while starting up
SENSOR	Sensor port indicator	Green	Blinking	Data received and sent
			Off	No data received or sent
COM1 ~ COM3	COM port indicator	Green	Blinking	Data received and sent
			Off	No data received or sent

Network port

The RDU-A host supplies a network port, which adopts 10/100M self-adaptable Ethernet port. Its position is shown in Figure 1-1.

Console port

The RDU-A host supplies a console port (RJ45 interface, see Figure 1-1 for its position), which adopts RS-232C communication mode. The communication parameters are given in Table 1-3.

Table 1-3 Communication parameters of console port

Parameter	Baud rate	Bit	Parity	Stop bit
Value	115200bps	8 bits	None	1 bit

USB port

The RDU-A host supplies a USB port for connecting camera or USB Modem of designated model. Its position is shown in Figure 1-1.

Relay output port

The RDU-A host supplies two relay outputs. Their positions are shown in Figure 1-1. See Table 1-4 for their parameters and Table 1-5 for phase sequences of the RJ45 interface.

Table 1-4 Relay output port parameter

Parameter	Value	Description
Route	2	Two relays can be controlled independently, totally supplying +24Vdc/0.2A power output
Output contact	Relay output contact (normally-open/normally-closed optional)	
Contact capability	0.75A/30Vdc	

Table 1-5 Phase sequences of relay output port (RJ45 interface)

Phase sequence[1]	1	2	3	4	5	6	7	8
Definition	24V	24V	Normally-closed	GND	Common end	Normally-open	NC[2]	NC
Note: 1. The phase sequences of RJ45 interface are 1 to 8 from left to right, with the gap downwords; 2. NC: Not Connected								

Digital signal port

The RDU-A host supplies four digital signal ports. Their positions are shown in Figure 1-1. See Table 1-6 for their parameters and Table 1-7 for phase sequences of the RJ45 interface.

Table 1-6 Digital signal port parameter

Silk print	Definition	Interface type	Measured signal	Power output	Maximum output current
DOOR1	Door status 1 port	RJ45 interface	Dry contact	+ 24Vdc	0.4A (the total current of 4 inputs)
DOOR2	Door status 2 port				
WATER	Water port				
SMOKE	Smoke port				
Note: These ports are all default configurations, which can also be configured as other sensor's connecting mode through software configuration by maintenance engineers only					

Table 1-7 Phase sequences of digital signal port (RJ45 interface)

Phase sequence	1	2	3	4	5	6	7	8
Definition	24V-signal input+	24V-signal input+	Signal input-(GND)	GND	GND	Signal input-(GND)	Signal input-(GND)	Signal input-(GND)

Sensor port

The RDU-A host supplies a route of sensor port, including two RJ45 interfaces. Their positions are shown in Figure 1-1.

- Adopt RS-485 communication mode, see Table 1-8 for its communication parameters

Table 1-8 Communication parameters of sensor port

Parameter	Baud rate	Bit	Parity	Stop bit
Value	9600bps	8 bits	None	1 bit

- Dedicated interface for temperature & humidity sensor, temperature sensor and digital expansion module
- Supply 24Vdc for connected sensor
- Up to 25 sensors can be connected

COM port

The RDU-A host supplies three independent COM port, namely, COM1, COM2 and COM3. Their positions are shown in Figure 1-1.

- Their communication modes are all RS-485/RS-232C, which can be chosen by jumper settings. See Table 1-9 and Table 1-10 for their communication parameters and phase sequences of the RJ45 interface.

Table 1-9 Communication parameters of COM port

Parameter	Baud rate	Bit	Parity	Stop bit
Value	1200bps, 2400bps, 4800bps, 9600bps, 19200bps (optional)	6 ~ 8 bits	Even/Odd/None	1 ~ 2 bits

Table 1-10 Phase sequences of COM port (RJ45 interface)

Phase sequence	1	2	3	4	5	6	7	8
Definition	RTS	NC	TXD	GND	GND	RXD	D+	D-

- Isolated from each other, not hot-pluggable

1.2.2 Power Module

The RDU-A has a dedicated power module. Its appearance is shown in Figure 1-2.

Figure 1-2 Power module

The power module can only be used for RDU-A products. Its AC end adopts common power cable, the input voltage is 100Vac ~ 250Vac and the input frequency is 45Hz ~ 65Hz; its DC end adopts Phoenix terminal. The power module supplies two DC outputs, and the output voltage is 24Vdc. Its total power is 30W.

Note

It is prohibited to open the shell of the power module.

1.2.3 IRM-E04COM Board (Optional)

IRM-E04COM board supplies four COM ports (COM5 ~COM8), which are used to connect user equipment. Its appearance is shown in Figure 1-3.

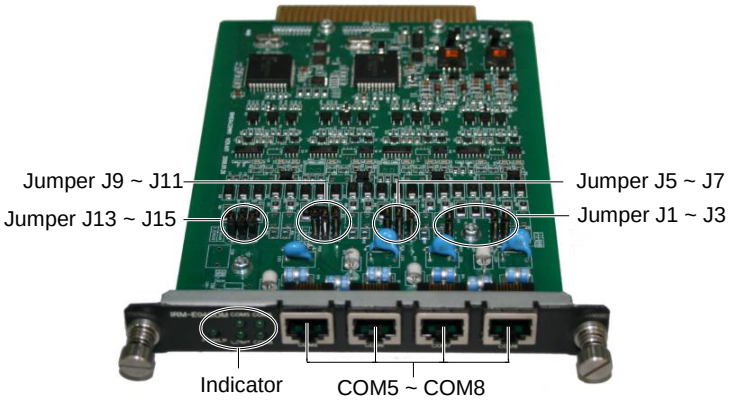


Figure 1-3 IRM-E04COM board

See Table 1-11 for the indicator definitions of IRM-E04COM board.

Table 1-11 Indicator definitions of IRM-E04COM board

Silk print	Definition	Color	Status	Description
POWER	Power indicator	Green	On	The IRM-E04COM board is powered on
			Off	The IRM-E04COM board is powered off
COM5 ~ COM8	COM port indicator	Green	Blinking	Data received and sent
			Off	No data received or sent

1.3 Main Functions

The main functions of RDU-A are listed in Table 1-12.

Table 1-12 Main functions of RDU-A

Main function	Description	
Device monitoring	Realizing camera viewing in data center; getting and handling the data of different intelligent devices and controlling them through Web interface	
AC TeamWork	Monitoring and controlling each AC which participates in the AC teamwork according to a certain rule, to achieve the goals of reducing AC power consumption, prolonging AC life-span and avoiding competition among ACs in the team	
Alarm Options	Current alarm	Displaying alarm in real time, and confirming the current alarm
	History alarm	Querying the history alarm
	Alarm notification	1. Can be customized according to user requirements, that is, alarm notification content can be customized; 2. You can choose the communication mode to receive alarm information of different level from different equipment; 3. The communication mode includes Email, SMS and phone; 4. Email supports SSL function; 5. Supplying alarm test function to test whether or not users have received the alarm notification information; 6. Sending the system running status periodically according to user configuration
	Actions	1. Can be customized according to user requirements; 2. REKAY1 alarm output; 3. Can combine equipment signals, parameters and alarm to control equipment; 4. Having the following logic components: 1) AND, which represent AND command 2) OR, which represent OR command 3) NOT, which represent NOT command 4) XOR, which represent XOR command 5) GT, which represent GT command 6) LT, which represent LT command 7) DS, which represent DS command

Main function	Description	
Data & History	Device information	Querying the main data of equipment
	History data	Querying the history data
	History log	Querying the log data
	Clear history	Clearing the history data and log data
Device Options	Device management	1. Can add, modify and delete equipment actively, and support adding seven pieces of intelligent equipment at most; 2. Can install and uninstall equipment type and support connecting third party equipment
	Signal setting	Modifying equipment name, signal name and alarm level online
	Batch configuration	Updating and downloading configuration files and system files
System Options	Monitoring unit	Collecting the system information of RDU-A
	Network setting	1. Setting the network information such as IP, subnet mask, gateway and DNS; 2. Controlling whether the upper monitoring system (RDU-M manager) can visit the RDU-A; 3. Remote service setting
	User management	Adding, modifying and deleting user information
	Date/time setting	Calibrating the real time clock of RDU-A
	System reset	Rebooting the RDU-A and restoring default configuration
	Site setting	Modifying site information online
	System upgrade	Upgrading the application program online
Personal Setting	System title	Setting title and logo picture at the top of the Web page
	Status bar	Configuring the current display contents of the status bar

1.4 Technical Specifications

1.4.1 Safety Regulations And EMC

See Table 1-13 for the safety regulations and EMC of RDU-A.

Table 1-13 Safety regulations and EMC

Item	Description
Safety regulations	EN60950, UL60950 (CE)
EMC	EN 55022:2006, IEC61000-4-6: 2006

1.4.2 Environment Specifications

See Table 1-14 for the environment specifications of RDU-A.

Table 1-14 Environment conditions

Item	Requirement
Application location	Usually in data center or computer room, with air conditioner
Working temperature	-10ºC ~ +50ºC
Relative humidity	5%RH ~ 95%RH, no condensing
Working environment	Dust: compliant with the indoor requirements of GR-63. No corrosive gas, flammable gas, oily mist, steam, water drops or salt
Air pressure	70kpa ~ 106kpa
Storage temperature	-40ºC ~ +70ºC
Cooling	Natural cooling
Power distribution network	TT/TN
Protection level	IP20

1.4.3 Mechanical Specifications

See Table 1-15 for the mechanical specifications of RDU-A.

Table 1-15 Mechanical specifications

Components	Size (L × W × H, unit: mm)	Weight (unit: kg)
RDU-A host	483.0 × 286.0 × 40.3	≤ 5
Power module	198.2 × 108.0 × 42.6	≤ 1
IRM-E04COM board	122.0 × 180.0 × 20.0	≤ 0.5

1.4.4 Performance Specifications

See Table 1-16 for the performance specifications of RDU-A.

Table 1-16 Performance specifications

Connected component	Cable standard	Connected distance (unit: m)	Connected number / connection point
Connecting nodes of DI, SENSOR ports	Standard category 4 twisted-pair cable	≤ 100	28[1]
Acousto-optic alarm indicator	Standard category 4 twisted-pair cable	≤ 100	2[2]
Intelligent device	Standard category 4 twisted-pair cable	≤ 100	16[3]

Note:
[1]: For temperature, temperature and humidity, door status, water, 4DI, 4DO sensors, DO devices and so on, each sensor or device is calculated as one node; for smoke and infrared sensors, each sensor is calculated as four nodes;
[2]: The acousto-optic alarm indicator has two routs of connection points: RELAY1, RELAY2, which can be used as two routes of digital output for other use;
[3]: The RDU-A can connect up to 16 intelligent devices, not including the default devices. The devices connected through network mode cannot exceed eight, and the connected devices of single COM cascade cannot exceed four

Chapter 2 Hardware Installation

This chapter introduces the hardware installation of RDU-A, including installation preparation, installing IRM-E04COM board, installing RDU-A host and power module and installing sensor.

2.1 Installation Preparation

2.1.1 Note

To ensure the safety of the product and installation personnel, take the following precautions:

- Always cut off the power before performing any installation operation
- Ensure that the peripheral equipment are connected to the correct RDU-A ports
- The IRM-E04COM board is not hot-pluggable, if it is plugged into the serial port when power is on, it cannot work normally
- Wear an ESD wrist-wrap when installing the IMU6100
- Arrange the wires properly, and do not put any heavy objects on the wires or stamp the wires

2.1.2 Environmental Requirement

Operating environment

The RDU-A must be installed indoors. See Table 1-14 for the detailed requirements.

Anti-static requirement

Take the following measures for minimizing static influences:

- Maintain proper temperature and humidity in the room (See Table 1-14)
- Wear antistatic clothing and an ESD wrist-wrap when operating the RDU-A; if antistatic clothing or ESD wrist-wraps are unavailable, wash your hands and dry them instead, which helps discharge the static electricity

Anti-EMI requirement

Take the following measures for anti-EMI purpose:

- Do not connect the RDU-A working ground to the working ground or lightning ground of electrical power equipment. Instead, place them away from each other as far as possible
- Keep the RDU-A away from large-power radio transmitter, radar, or high-frequency large current electrical equipment
- Use electromagnetic shielding if necessary

2.1.3 Heat Dissipation Requirement

- Keep the RDU-A as far as possible from heat sources
- It is recommended to install the RDU-A into a 19'' standard cabinet. Keep at least 10mm clearance around the RDU-A for heat dissipation

2.1.4 Installation Tool

The required installation tools are listed in Table 2-1.

Table 2-1 Installation tools

Tool	Specification	Usage
Cross screwdriver	100mm, 200mm	Installing the brackets, top cover and dummy plate for expansion slot of RDU-A host, and pothook of power module
Digital multimeter	3.5-bit digital display	Inspecting the electrical connection

2.2 Installing IRM-E04COM Board

> 🕮 **Note**
>
> The IRM-E04COM board is optional, and you can choose whether to buy and install it or not.

Before installing the IRM-E04COM board, users need to set communication mode of COM5 ~ COM8 first, and then perform the mechanical installation.

2.2.1 Set Communication Mode Of COM5 ~ COM8

Serial ports COM5 ~ COM8 all have two optional modes: RS-485/RS-232C. Different COM ports can be set through different jumpers. COM5: J13 ~ J15; COM6: J9 ~ J11; COM7: J5 ~ J7; COM8: J1 ~ J3. The interfaces and jumpers of the IRM-E04COM board are shown in Figure 2-1.

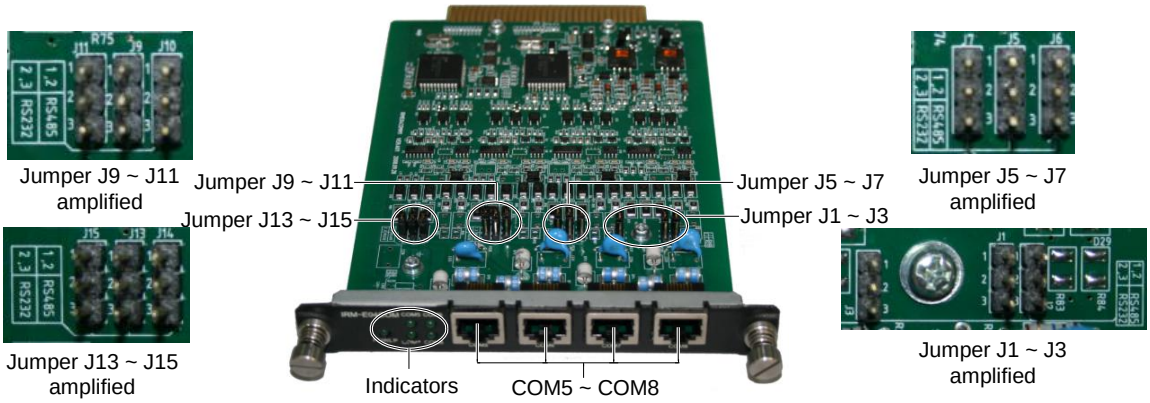

Jumper J9 ~ J11 amplified
Jumper J9 ~ J11
Jumper J13 ~ J15
Jumper J5 ~ J7
Jumper J1 ~ J3
Jumper J5 ~ J7 amplified
Jumper J13 ~ J15 amplified
Jumper J1 ~ J3 amplified
Indicators
COM5 ~ COM8

Figure 2-1 Interfaces and jumpers of the IRM-E04COM board

See Table 2-2 for the jumper settings of IRM-E04COM board.

Table 2-2 Jumper setting of IRM-E04COM board

COM port	Jumper	Short connect pin1 and pin2	Short connect pin2 and pin3	Default
COM5	J13/J14/J15	RS-485	RS-232C	RS-485
COM6	J9/J10/J11	RS-485	RS-232C	RS-485
COM7	J5/J6/J7	RS-485	RS-232C	RS-485
COM8	J1/J2/J3	RS-485	RS-232C	RS-485

2.2.2 Mechanical Installation

1. Remove the dummy plate on the back panel of the RDU-A host, and reserve it for future use.
2. Insert the IRM-E04COM board into the expansion slot and screw the two bolts on both sides of the panel.
3. Ensure that the POWER indicator on the IRM-E04COM board is on, and it is green in normal condition. If the POWER indicator is off, refer to Q3 in *6.2 FAQ*.

2.3 Installing RDU-A Host And Power Module

Before installing the RDU-A host, users need to set communication mode of COM1 ~ COM3 first, and then perform the mechanical installation and electrical connection.

2.3.1 Set Communication Mode Of COM1 ~ COM3

Serial ports COM1 ~ COM3 all have two optional modes: RS-485/RS-232C. Different COM ports can be set through different jumpers. COM1: J21 ~ J23; COM2: J25, J26; COM3: J27, J28. The jumper positions are shown in Figure 2-2.

Jumper J21 ~ J23, J25 ~ J28 amplified

Figure 2-2 Jumpers J21 ~ J23, J25 ~ J28

See Table 2-3 for the communication mode settings of serial port COM1 ~ COM3.

Table 2-3 Set the communication mode of COM1 ~ COM3

COM port	Jumper	Short connect pin1 and pin2	Short connect pin2 and pin3	Default
COM1	J21, J22, J23	RS-485	RS-232C	RS-232C
COM2	J25, J26	RS-485	RS-232C	RS-485
COM3	J27, J28	RS-485	RS-232C	RS-485

2.3.2 Mechanical Installation

The RDU-A host and power module can be installed in a rack.

The installation procedures are as follows:

1. Confirm that the rack has been secured, with no obstacles inside or outside the rack.

2. Fasten the hangers to the two sides of the RDU-A host with accessory M4 bolts, as shown in Figure 2-3.

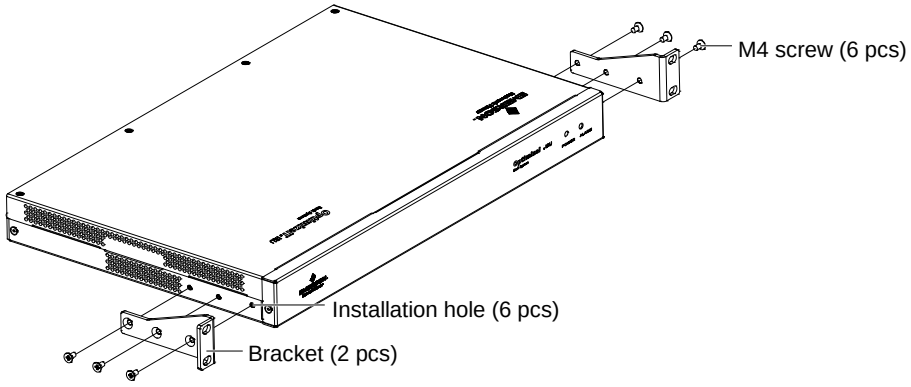


Figure 2-3 Fixing hangers

The hangers are installed, as shown in Figure 2-4.

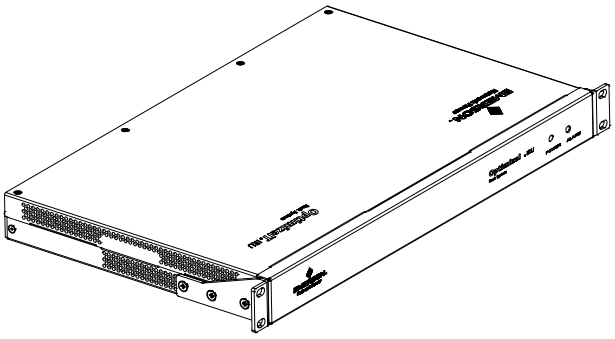


Figure 2-4 Hangers of RDU-A host are installed

3. Put the RDU-A host on the rails on both sides of the rack, and push it into the rack completely, as shown in Figure 2-5.

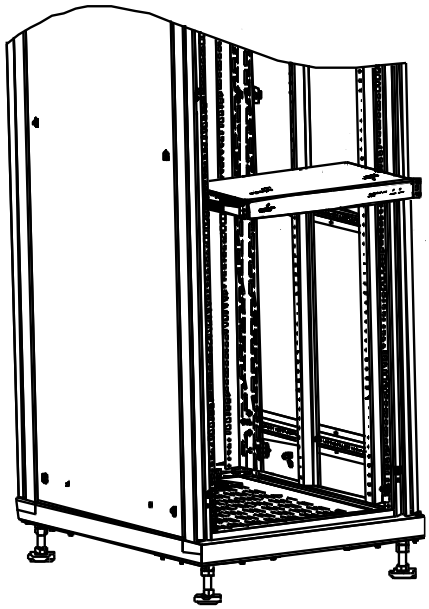


Figure 2-5 Pushing RDU-A host into rack

4. Use M6 floating nuts to fasten the hangers of RDU-A host to the rack.

5. Use accessory tapping screws (ST2.9 × 6.5F) to fasten pothook to the back installation hole of the power module, as shown in Figure 2-6.

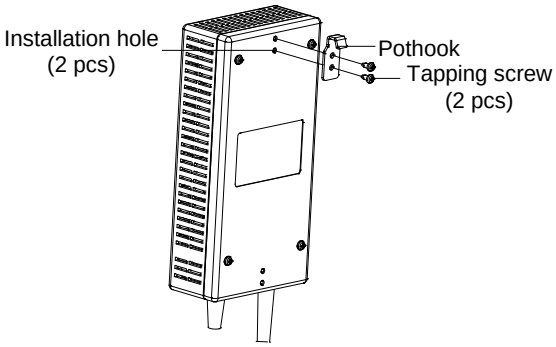


Figure 2-6 Installing pothook of RDU-A host

The pothook is installed, as shown in Figure 2-7. Then hang the power module IRM-U061DR1 in the square holes of rack's vertical poles or crossbeams.

Note

1. If the rack's top cover has a cable entry hole, the power module can only be hung in the square holes of the back vertical poles, to avoid metal objects such as cables and screws from entering the power module through the cable entry hole.

2. The power module can also be placed on the RDU-A host or other equipment flatwise.

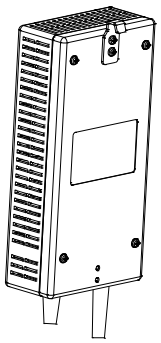


Figure 2-7 Pothook is installed

2.3.3 Electrical Connection

The electrical connection procedures of the RDU-A host and power module are as follows:

1. Use earth cable to connect the PE (as shown in Figure 1-1) on the RDU-A host.

2. Insert the terminal of power module's output cable into the power interface (as shown in Figure 1-1) of the RDU-A host.

3. Ensure that the wiring is correct. Connect the power input terminal to the mains supply.

2.4 Installing Sensor

RDU-A can connect intelligent sensors and physical sensors.

2.4.1 Installing Intelligent Sensors

The intelligent sensors include: IRM-S01T intelligent temperature sensor (IRM-S01T for short), IRM-S02TH intelligent temperature and humidity sensor (IRM-S02TH for short), IRM-S04DI intelligent digital input sensor with Phoenix ports (IRM-S04DI for short), IRM-S04DIF intelligent digital input sensor with RJ45 ports (IRM-S04DIF for short). Their appearances are shown in Figure 2-8.

IRM-S01T

IRM-S02TH

IRM-S04DI

IRM-S04DIF

Figure 2-8 Intelligent sensors

Environment requirement

Operating environment should be electric dust free, corrosive metal free and insulation breakdown gas free.

Avoid using the sensor in watery or foggy places.

Operating temperature: -10°C ~ +50°C; Storage temperature: -30°C ~ +70°C; Humidity: 5% ~ 95% (non-condensing).

Installation requirement

Keep a clearance of more than 20mm around the sensor's airway to ensure ventilation inside and outside of the sensor.

Installation procedures

For the installation procedures of the intelligent sensors, refer to the corresponding intelligent sensor user manuals:

Refer to IRM-S01T Intelligent Temperature Sensor User Manual for IRM-S01T;

Refer to IRM-S02TH Intelligent Temperature And Humidity Sensor User Manual for IRM-S02TH;

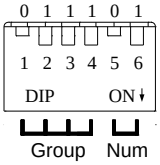
Refer to *IRM-S04DI Intelligent Digital Input Sensor With Phoenix Ports User Manual* for IRM-S04DI;

Refer to *IRM-S04DIF Intelligent Digital Input Sensor With RJ45 Ports User Manual* for IRM-S04DIF.

Address setting

The intelligent sensor address is composed of group number and serial number in the group, which can be set through the DIP switch on the intelligent sensor.

The address setting methods of IRM-S01T and IRM-S02TH are the same. The address is set through DIP switch DIP1 ~ DIP6, among which DIP1 ~ DIP4 are used to set the group number and DIP5 ~ DIP6 are used to set the serial number within the group. For example, the sensor address of 71 is set as shown in Figure 2-9, among which 0111 means group number 7 and 01 means serial number 1 within the group.



Note: 1. DIP switch in the ON position means 1, or it means 0;
2. The sensor address cannot be set as 00, which is the broadcast address.

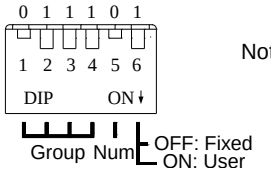
Figure 2-9 DIP switch setting schematic diagram

The settings of DIP1 ~ DIP6 are listed in the Table 2-4.

Table 2-4 DIP1 ~ DIP6 setting table

DIP1 ~ DIP4	Group		DIP1 ~ DIP4	Group		DIP1 ~ DIP4	Group		DIP5 ~ DIP6	Number
0 0 0 0	0		0 1 1 0	6		1 1 0 0	C		0 0	0
0 0 0 1	1		0 1 1 1	7		1 1 0 1	d		0 1	1
0 0 1 0	2		1 0 0 0	8		1 1 1 0	E		1 0	2
0 0 1 1	3		1 0 0 1	9		1 1 1 1	F		1 1	3
0 1 0 0	4		1 0 1 0	A						
0 1 0 1	5		1 0 1 1	b						

The address setting methods of IRM-S04DI intelligent digital input sensor with Phoenix ports and IRM-S04DIF intelligent digital input sensor with RJ45 ports are the same. The address is set through DIP switch DIP1 ~ DIP6, among which DIP1 ~ DIP4 are used to set the group number; DIP5 is used to set the serial number within the group; DIP6 is used to set the type of connected equipment. For example, the sensor address of 70 is set as shown in Figure 2-10, among which 0111 means group number 7; 0 means serial number 0 within the group and 1 means that the type of connected equipment is user customized equipment.



Note: 1. DIP switch in the ON position means 1, or it means 0;
2. The sensor address cannot be set as 00, which is the broadcast address.

Figure 2-10 DIP switch setting schematic diagram

The settings of DIP1 ~ DIP4 are listed in the Table 2-5.

Table 2-5 DIP1 ~ DIP4 setting table

DIP1 ~ DIP4	Group		DIP1 ~ DIP4	Group		DIP1 ~ DIP4	Group		DIP1 ~ DIP4	Group
0 0 0 0	0		0 1 0 0	4		1 0 0 0	8		1 1 0 0	C
0 0 0 1	1		0 1 0 1	5		1 0 0 1	9		1 1 0 1	d
0 0 1 0	2		0 1 1 0	6		1 0 1 0	A		1 1 1 0	E
0 0 1 1	3		0 1 1 1	7		1 0 1 1	b		1 1 1 1	F

The settings of DIP5, DIP6 are listed in the Table 2-6.

Table 2-6 DIP5, DIP6 setting table

DIP5	Number		DIP6	Connected equipment type
0	0		0	Fixed equipment
1	1		1	User customized equipment

2.4.2 Installing Physical Sensors

The physical sensors include smoke sensor, water sensor and door status sensor.

Installing smoke sensor

The smoke sensor is used for fire detection during preliminary fire brewing stage when plenty of smog is generated. You can choose whether or not to buy and install it on their own.

1. Environment requirement

The smoke sensor should not be installed where:

- The relative humidity often exceeds 95%RH
- The air flow speed exceeds 5m/s
- Plenty of dust, thick fog, or corrosive gas is present
- Alcohol, aether, or ketone type organic substances are present

2. Installation requirement

The smoke sensor should be installed in the center of the ceiling.

0.5m clearance should be maintained around the smoke sensor; the smoke sensor should be installed at least 1.5m away from the air vent of the air conditioner, and at least 0.5m away from the air vent of the ceiling.

3. Installation procedure

The smoke sensor has two installation modes:

- Directly connected to the smoke port (silk print: SMOKE) on the RDU-A rear panel, see Table 1-7 for the phase sequences
- Connected to RDU-A through IRM-S04DI or IRM-S04DIF: connect the smoke sensor to the digital signal port of IRM-S04DI or IRM-S04DIF, refer to *IRM-S04DI Intelligent Digital Input Sensor With Phoenix Ports User Manual* for IRM-S04DI or *IRM-S04DIF Intelligent Digital Input Sensor With RJ45 Ports User Manual* for IRM-S04DIF for the phase sequences

Installing water sensor

You can choose whether or not to buy and install the water sensor on their own.

The water sensor should be horizontally positioned at a low place or in front of the communication equipment.

For the installation procedures of water sensor, refer to *Installing smoke sensor*.

Installing door status sensor

You can choose whether or not to buy and install the door status sensor on their own.

When the door is closed, only a maximum of 5mm distance is allowed between the two parts of the door status sensor. If the distance exceeds 5mm, find a proper position for the sensor to meet the requirement.

For the installation procedures of door status sensor, refer to *Installing smoke sensor*.

Chapter 3 Access RDU-A Through Interfaces

This chapter expounds how to access RDU-A through interfaces, including logging on RDU-A, power on RDU-A and using command line.

3.1 Logging On RDU-A

3.1.1 Through Network Port (LAN)

1. Use a standard network cable to connect the network port of the RDU-A host with the network port of the computer.

2. You should set the parameters of HyperTerminal after the network cable is connected. The detailed setting procedures are as follows:

Step 1: First open the console panel in PC, double click the icon of **Network Connections**, and then double click **Local Area Connection** to enter network configuration dialog box as shown in Figure 3-1. Click **Properties** to open **Local Area Connection Properties** dialog box, and then double click **Internet Protocol (TCP/IP)** to configure the IP address. The recommended configuration is '192.168.0.1', as shown in Figure 3-2.

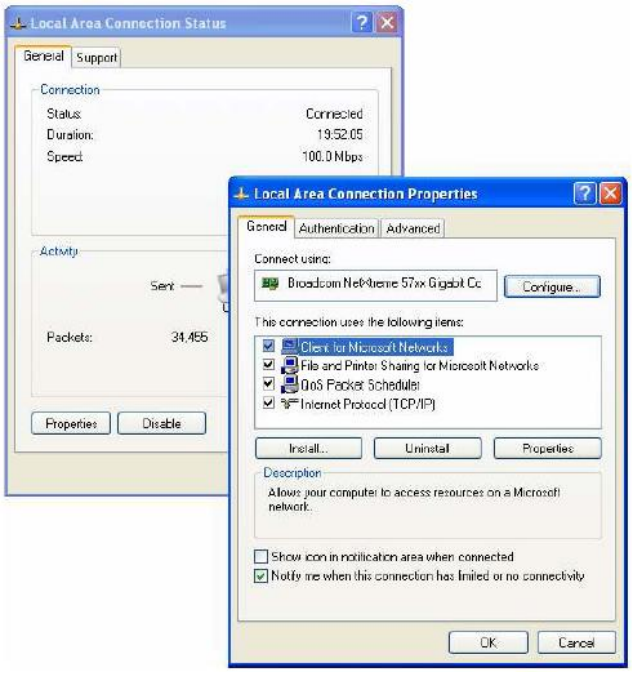


Figure 3-1 Local area connection properties

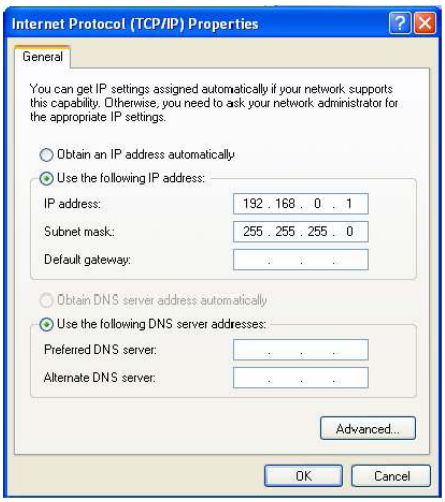

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 0 . 1
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Figure 3-2 Internet protocol (TCP/IP) properties

Step 2: Click Start -> Programs -> Accessories -> Communications -> HyperTerminal, the HyperTerminal interface as shown in the Figure 3-3 pops up. Type the name 'RDU-A' in the **Name** field and click **OK**.

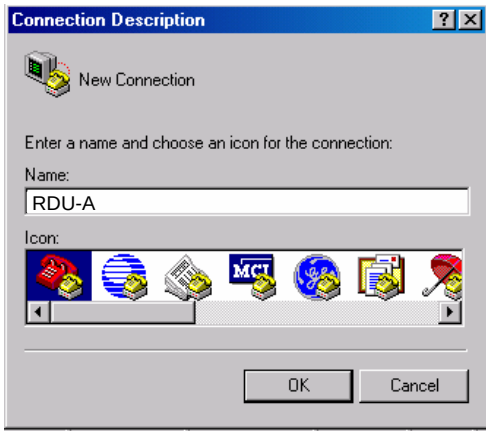


Figure 3-3 HyperTerminal

Step 3: Select TCP/IP as the connection mode and click **OK**, as shown in Figure 3-4.

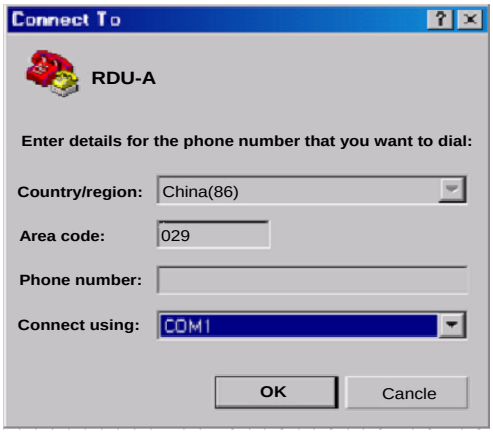


Figure 3-4 Communication mode setting

Step 4: Type the **Host address** (RDU-A default IP address: 192.168.0.254) and **Port number** (RDU-A default port number: 23), and click **OK** to complete the HyperTerminal setting, as shown in the Figure 3-5.

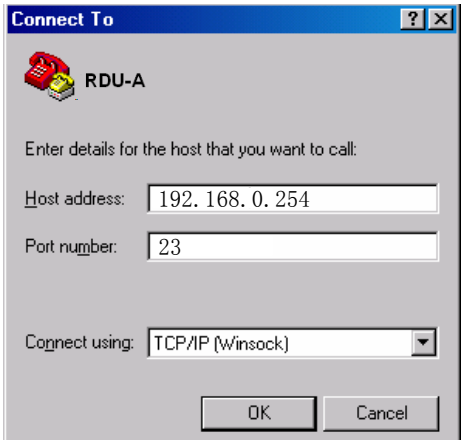
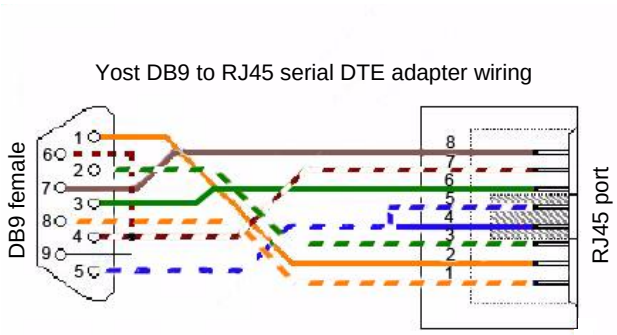


Figure 3-5 Communication parameters setting

You can also log on to RDU-A by running the telnet IP address of RDU-A in the windows **Start** menu.

3.1.2 Through Console Port (CONSOLE)

1. Connect the RJ45 end of the console cable to RDU-A console port, and connect the other end to any serial port of the computer. The RJ45-DB9 wiring is shown in Figure 3-6.



RJ45	Function	Color	DB9
1	NC	White/orange	8
2	NC	Orange	1
3	TXD	White/green	2
4	GND	Blue	5
5	GND	White/blue	5
6	RXD	Green	3
7	NC	White/brown	4
			6
8	NC	Brown	7

Figure 3-6 RJ45-DB9 wiring

2. You should set the parameters of HyperTerminal after the console cable is connected. The detailed setting procedures are as follows:

Step 1: Click Start -> Programs -> Accessories -> Communications -> HyperTerminal, the HyperTerminal interface as shown in the Figure 3-7 pops up. Type the name 'RDU-A' in the **Name** field and click **OK**.

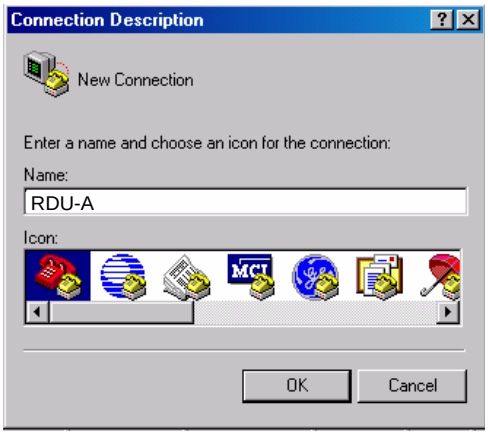


Figure 3-7 HyperTerminal

Step 2: Choose the serial port being used (such as 'COM1') in the **Connect using** field and click **OK**, as shown in the Figure 3-8.

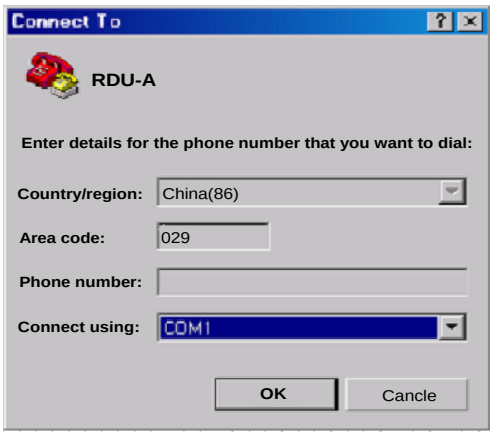


Figure 3-8 Communication mode setting

Step 3: Set the parameters of HyperTerminal

1) Set the port parameters as shown in Figure 3-9, and click **OK**.

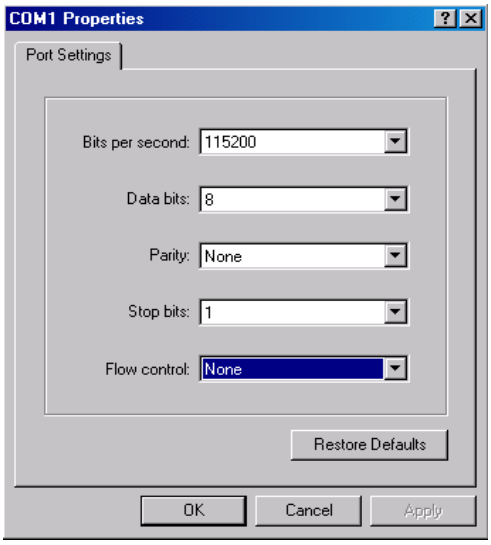


Figure 3-9 Communication parameters setting

2) Run the HyperTerminal of Win95/NT/2000, and choose the serial port being used.

3) Choose File -> Properties in the **RDU-A -HyperTerminal** interface, and choose the **Settings** tab in the popped-up **RDU-A Properties** interface. Choose 'Auto detect' or 'VT100' in the **Emulation** field, and then click **OK**, as shown in the Figure 3-10.

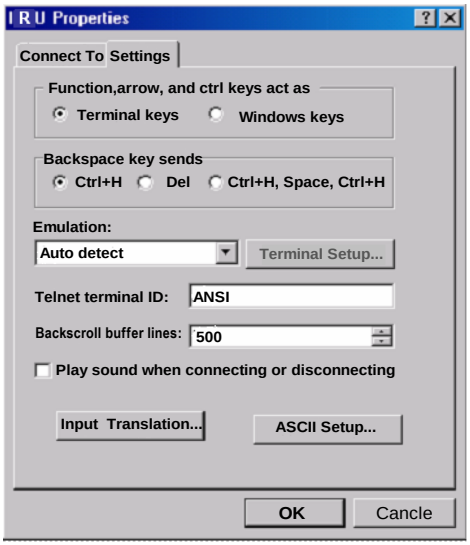


Figure 3-10 Emulation setting

3.2 Power On RDU-A

After finishing the cable connection and parameter settings above, power on RDU-A and the message shown in Figure 3-11 will appear, which implies that the system has been initialized and everything is normal.

You can press the Enter key to enter the command line and log on to RDU-A system by using the ID of 'rduadmin'. The default password is 'emerson'.

```
RDU-HOST login: rduadmin
Password:
Welcome to RDUA world!
 ************************************************************************
 *                                                                      *
 *       Copyright(c) Emerson Group, All rights reserved.               *
 *             2009 Copyright, 2012 by Emerson Group                    *
 *                                                                      *
 *                       Welcome to RDU                                 *
 *                                                                      *
 *                                          Version 3.0                 *
 *                                            2012.01                   *
 ************************************************************************

RDU_admin#
```

Figure 3-11 Power on RDU-A

3.3 Using Command Line

> 🕮 **Note**
>
> 1. To validate a command after setting parameters, enter 'Y' as prompted, and the command will become valid after 30 seconds.
> 2. When entering parameters, pressing the Enter key will keep the original parameter.

3.3.1 Logging On To The Command Line

The detailed procedures of logging on to the RDU-A are as follows:

1. Power on the RDU-A. If the RDU-A starts normally, the HyperTerminal will display **RDU-HOST login:**.

2. Type the user name 'rduadmin' and press the Enter key, the HyperTerminal will display **Password:**.

3. Type the password 'emerson' and press the Enter key, the HyperTerminal will display the command prompt **RDU_admin#**.

> 🕮 **Note**
>
> Both the user name and password are case-sensitive.

3.3.2 Setting RDU-A User Password

The password command is used to set the RDU-A user password.

Type 'password' under the command prompt **RDU_admin#** and press the Enter key. Type a new password of 5 ~ 8 characters under the command prompt and press the Enter key; Re-enter the same new password under the command prompt and press the Enter key, as shown in the Figure 3-12.

```
RDU_admin#password
Changing password for rduadmin
Enter the new password (minimum of 5, maximum of 8 characters)
Please use a combination of upper and lower case letters and numbers.
Enter new password:
Re-enter new password:
passwd[122]: password for `rduadmin' changed.
Password changed.
```

Figure 3-12 RDU-A password setting

3.3.3 Setting IP Address Of RDU-A

The Setip command is used to set and save the IP address of RDU-A.

Type ‘setip’ under the command prompt **RDU_admin#** and press the Enter key. Type the new IP address, mask and default gateway of the RDU-A following the instructions and press the Enter key; then the system prompts whether to save the new configuration, type ‘Y’ to save the new network parameters and make them take effect, as shown in the Figure 3-13.

```
RDU_admin#setip
Please input IP_address[192.168.0.254]:192.168.0.253
Please input Subnet_mask[255.255.254.0 ]:
Please input Default_gateway[none]:

IP information will be modified as below:
IP address        :192.168.0.253
IP mask           :255.255.254.0
IP default gateway:none
If you log in by telnet, please configure the new IP when you ensure to change it!

Are you sure to save it? Y/N [N]y
killall: in.telnetd: no process killed

IP information has been modified as below:

IP address        :192.168.0.253
IP mask           :255.255.254.0
IP default gateway:none

RDU_admin#
```

Figure 3-13 Set IP address of RDU-A

Note

If you log in the configuration interface by Telnet, please use the new IP to log in Telnet after typing ‘Y’ to save the new IP.

3.3.4 Set Time Of RDU-A

The Settime command is used to set the time of RDU-A.

Type ‘settime’ under the command prompt **RDU_admin#** and press the Enter key. Type ‘year-month-date: hour-minute-second’ and press the Enter key, as shown in Figure 3-14.

```
RDU_admin#settime
Before operating, you should stop application program first!
**************************************************
*               Set RDU time                     *
* Pleae input year-month-day hour:minute:second   *
*   format :  YYYY-MM-DD hh:mm:ss                 *
*   example:  2008-05-06 08:06:18                 *
*                                                 *
**************************************************
Please input new time(YYYY-MM-DD hh:mm:ss):2009-02-24 16:00:00
Current time is 2009-02-24 16:00:00
Tue Feb 24 16:00:00 UTC 2009
```

Figure 3-14 Set time of RDU-A

3.3.5 Reboot RDU-A

The reboot command is used to reboot RDU-A.

Type ‘reboot’ under the command prompt **RDU_admin#** and press the Enter key, as shown in Figure 3-15.

```
RDU_admin#
RDU_admin#reboot
Are you sure to reboot the system? Y/N [N]y
```

Figure 3-15 Reboot RDU-A

Type ‘Y’ under the command prompt and press the Enter key to reboot RDU-A.

Chapter 4 Access RDU-A Through Web

This chapter expounds how to access RDU-A through Web, including overview of web function and the use methods of authorizing boot-strap page, login RDU-A web page, getting password page, RDU-A homepage, menu and shortcut methods.

4.1 Overview Of Web Function

Through Web page you can implement the following operations:

- Two themes are provided by default: crystal blue or ocean blue
- Getting password back
- Browsing the detailed status of each piece of equipment such as Environment Temperature & Humidity, Environment 4DI, UPS and precision air conditioner
- Sending control command to equipment and set parameters of equipment
- Viewing the current alarms that can be auto popped up if a new alarm generates
- Querying historical alarms, historical data and log data
- Changing system parameters, such as IP address, time, and user information
- Changing site information, equipment name, signal name and alarm level on line
- Active equipment management, including: installing/uninstalling equipment type and active adding, deleting and modifying equipment
- Customizing alarm notification language, notification method and alarm content
- Function of notifying system status regularly
- Downloading/uploading configuration files and system files
- Upgrading application program online
- AC teamwork function
- Remote service function

4.2 Authorizing Boot-Strap Page

1. When logging in RDU-A for the first time, open IE and type the IP address of RDU-A in the **Address** field, the authorizing boot-strap page will appear, as shown in Figure 4-1.

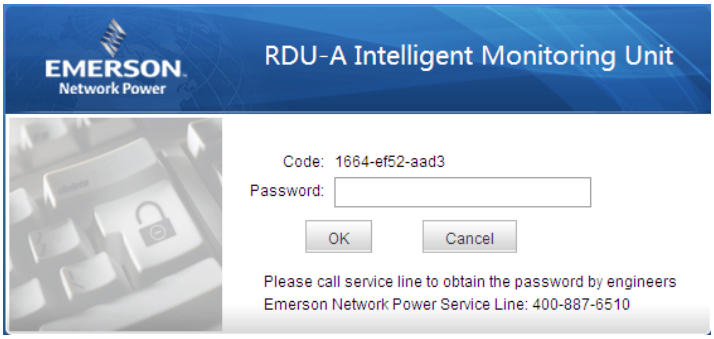


Figure 4-1 Authorizing power-on page

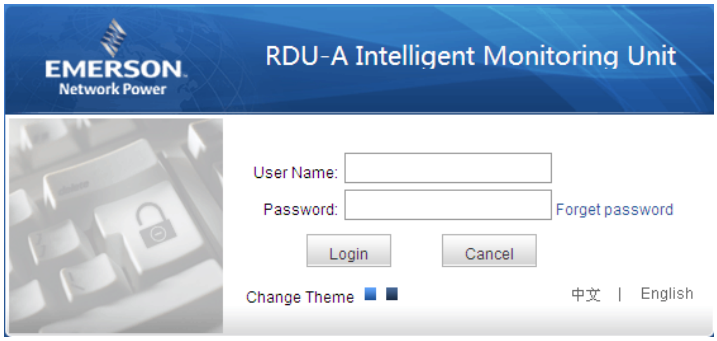
2. Authorize the commissioning engineer to call the customer service hotline of Emerson Network Power Co., Ltd.: 400-887-6510, and you will get the power-on password.

3. Type the gotten power-on password in the textbox of **Password**, and then click **OK**.

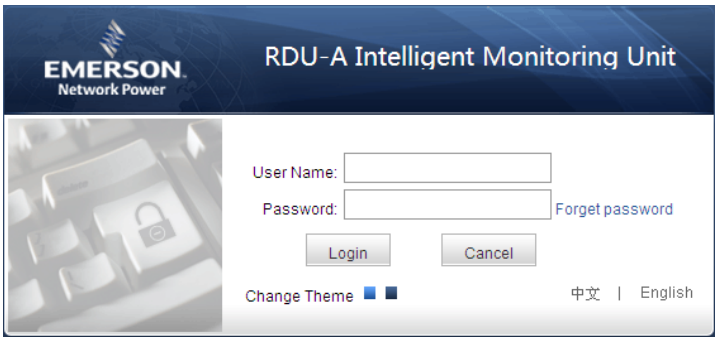
If the power-on password is correct, the system will jump to the login page, as shown in Figure 4-2.

4.3 Login RDU-A Web Page

1. Open IE and type the IP address of RDU-A in the **Address** field, the login page pops up, as shown in Figure 4-2. If the login page does not pop up, refer to Q7 in *6.2 FAQ* for disposal.



Crystal blue



Ocean blue

Figure 4-2 RDU-A login page

2. On the RDU-A login page, select a preferable skin by clicking ■ or ■: ■ means crystal blue; ■ means ocean blue, as shown in Figure 4-2.

3. Type username and password (default username: admin, default password: emerson) to log in RDU-A, and the homepage pops up, as shown in Figure 4-4.

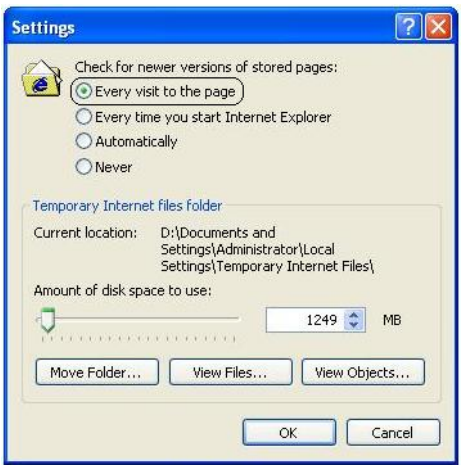
If users have typed the right username and password, but still cannot visit the RDU-A homepage, refer to Q8 in *6.2 FAQ* for disposal.

Note

1. It is suggested to use the explorer of IE 6.0 or above.

2. It is suggested to set the IE explorer: click Tools -> Internet options, click **Settings** in the **General** tab, and choose 'Every visit to the page' for **Check for newer versions of stored pages**, as shown in Figure 4-3.

***General** tab*



Setting window

Figure 4-3 Setting window

4.4 Getting Password Page

1. On the RDU-A login page, click the **Forget password** button, and the screen displays the page of getting password, as shown in Figure 4-4.

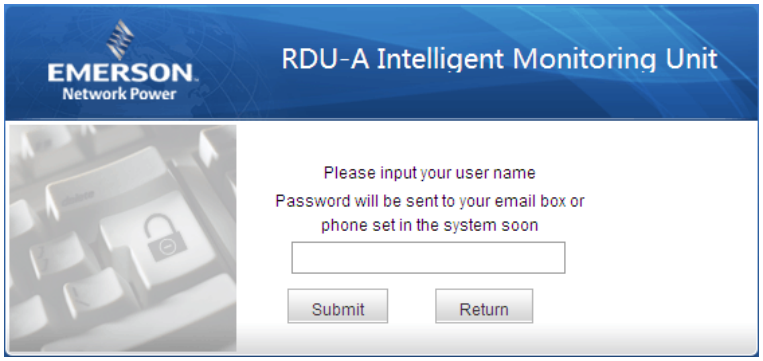


Figure 4-4 Page of getting password

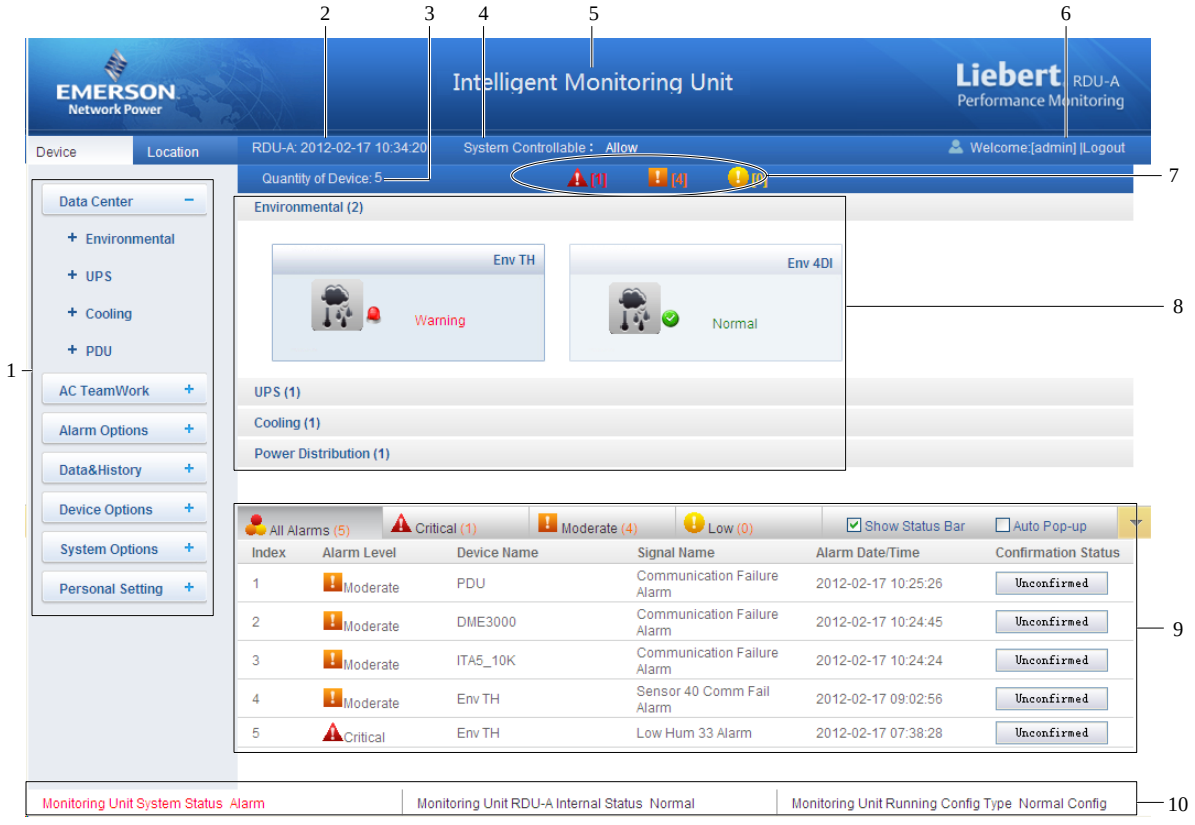
2. Type your username, and click the **Submit** button, your password will be sent to the email box or phone which you have configured before; click the **Return** button to cancel the operation.

Note

Only when you have configured email and SMS parameters correctly in advance on the **SMS/Email Server Configuration** page, can you receive the password sent by system. Refer to *Alarm Notification* in *4.6.3 Alarm Options* for detailed setting method.

4.5 RDU-A Homepage

The RDU-A homepage is shown in Figure 4-5.



1. Menus
2. RDU-A system time and time calibration link
3. Device number in the group
4. System controllable status
5. System name
6. [User] Logout
7. Current number of every level alarm
8. Equipment information
9. Alarm information
10. Status bar

Figure 4-5 RDU-A homepage

On the RDU-A homepage, the menus including **Data Center**, **AC TeamWork**, **Alarm Options**, **Data&History**, **Device Options**, **System Options** and **Personal Setting**; the status bar is located in the bottom of the page, hidden by default and displayed by ticking **Show Status Bar**.

4.6 Menu

4.6.1 Data Center

On the RDU-A homepage, click **Data Center** in the left part, the submenus will appear, including group equipment type name (such as **Environmental**, **UPS**, **Cooling** and **PDU**) and **Camera View** (displayed when a video device is connected).

Note

1. **Data Room** includes one submenu by default: **Environmental**. After new equipment is added, its corresponding group equipment type name will also be added to the submenu. After a camera is connected, **Camera View** will be added to the submenu.
2. The right part displays the group equipment type pictures, which can be automatically adjusted according to the page width.

Environmental

Click the **Environmental** submenu under the **Data Room** menu or the environmental picture shown in Figure 4-5, the page shown in Figure 4-6 pops up.

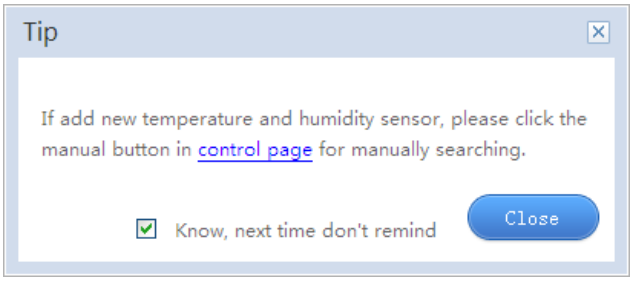
Figure 4-6 Environmental

As shown in Figure 4-6, the left menu displays the specific equipment names under **Environmental**: **Env TH** and **Env 4DI**; the right part displays the specific equipment information contained in **Environmental**, including equipment pictures (**Env TH** picture and **Env 4DI** picture) and the equipment running status (**Normal** or **Warning**).

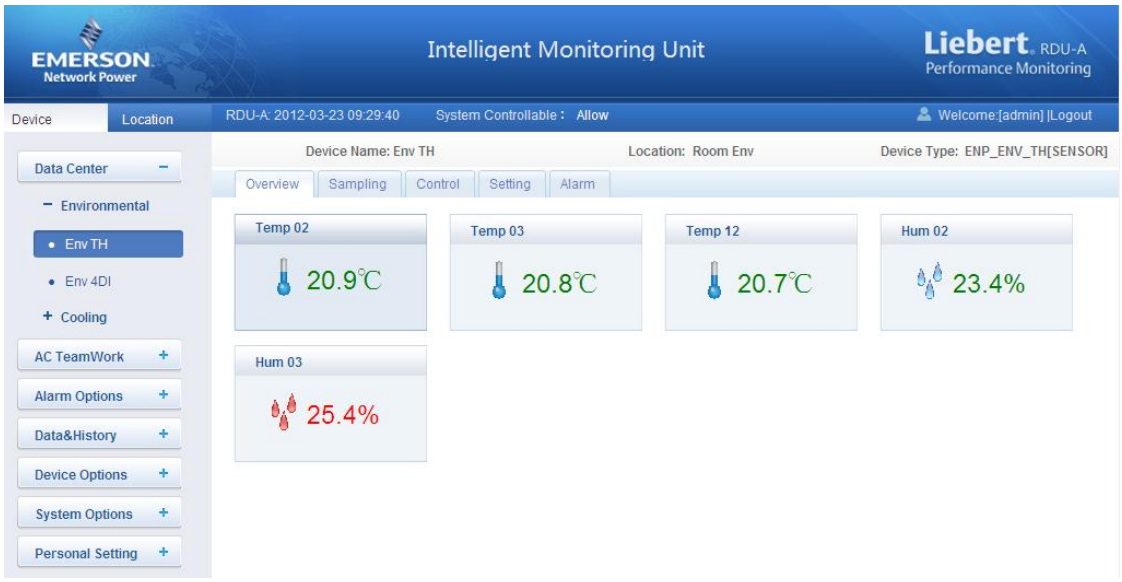
Taking **Env TH** and **Env 4DI** as examples, the following introduces the operation of Data Center.

Env TH

Click the **Env TH** submenu or the **Env TH** picture shown in Figure 4-6, a prompt window pops up, as shown below. Clicking the **control page** link enters the control page of Env TH, as shown in Figure 4-9; clicking the **Close** button displays the overview page of Env TH, as shown in Figure 4-7.


Tip
If add new temperature and humidity sensor, please click the manual button in control page for manually searching.
Know, next time don't remind
Close

Prompt window



Overview page

Figure 4-7 Env TH

As shown in Figure 4-7, the overview page displays the information of all intelligent temperature sensors and intelligent temperature & humidity sensors connected with the RDU-A. The icons and represent temperature and humidity respectively. Blue icon means no alarm, red icon means that an alarm exists. The value behind the icon is the current temperature/humidity value.

Click the **Sample** button to view the sample signal of **Env TH**, as shown in Figure 4-8.

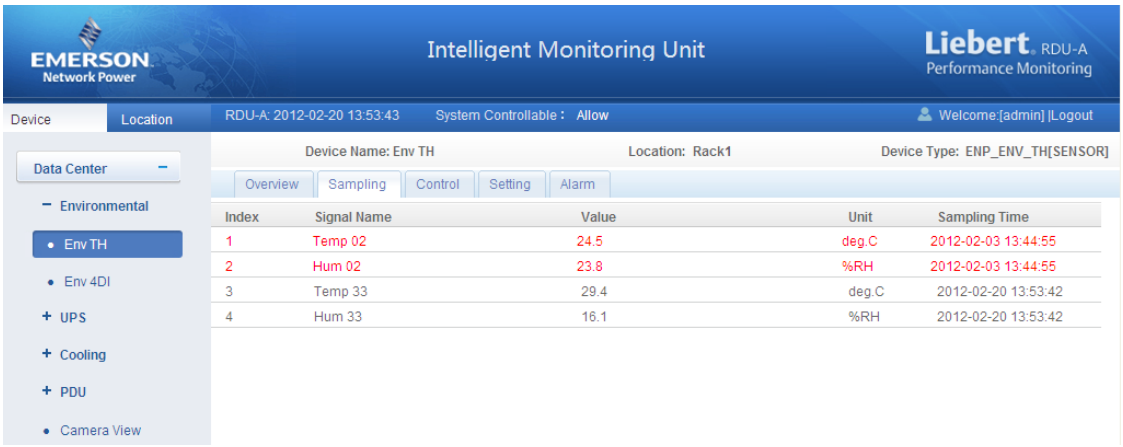


Figure 4-8 Env TH (Sample)

As shown in Figure 4-8, you can view the information of all connected intelligent temperature sensors and intelligent temperature & humidity sensors connected with the RDU-A, such as the values of **Temp 02** and **Hum 02** for intelligent temperature & humidity sensor. 02 is the DIP address of the intelligent temperature & humidity sensor, among which 0 is the group address, and 2 is the serial number in the group.

As for the sample signals of **Env TH**, the descriptions are as follows:

1. For the convenience of signal edit, it is suggested to configure the group address of the intelligent temperature sensor and intelligent temperature & humidity sensor as the rack number; the serial number in the group can be used to distinguish their specific positions, such as front, back, left and right.

2. When the temperature or humidity of the intelligent temperature sensor or intelligent temperature & humidity sensor exceeds the alarm limit value, the signal will turn red.

3. When the intelligent temperature sensor or intelligent temperature & humidity sensor fails in communication, the corresponding sample signal will turn gray.

4. The equipment signal name can be modified by double-click operation, see *4.7.1 Modify Signal Name* for details.

Click the **Control** button to view the control signal of **Env TH**, as shown in Figure 4-9.

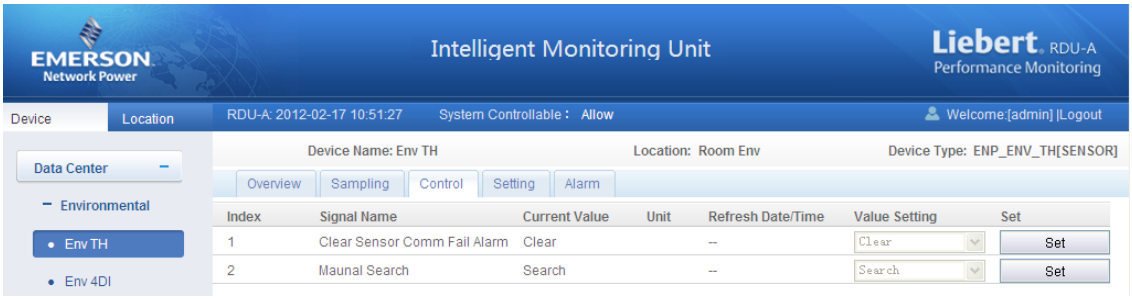


Figure 4-9 Env TH (Control)

As shown in Figure 4-9, the page displays the control signal of **Env TH**, two functions can be realized:

1. Click the **Set** button to clear the communication failure alarm for the intelligent temperature sensor and intelligent temperature & humidity sensor;

2. Click the **Set** button to search the connected sensors manually.

Note

1. Upon clearing the communication fail alarm, other signals including Sample signal and Setting signal of the intelligent temperature sensor and intelligent temperature & humidity sensor will be cleared, too.

2. After new sensors are connected, you must conduct manual search, otherwise, the sensors cannot be recognized.

Click the **Setting** button to view the setting signal of **Env TH**, as shown in Figure 4-10.

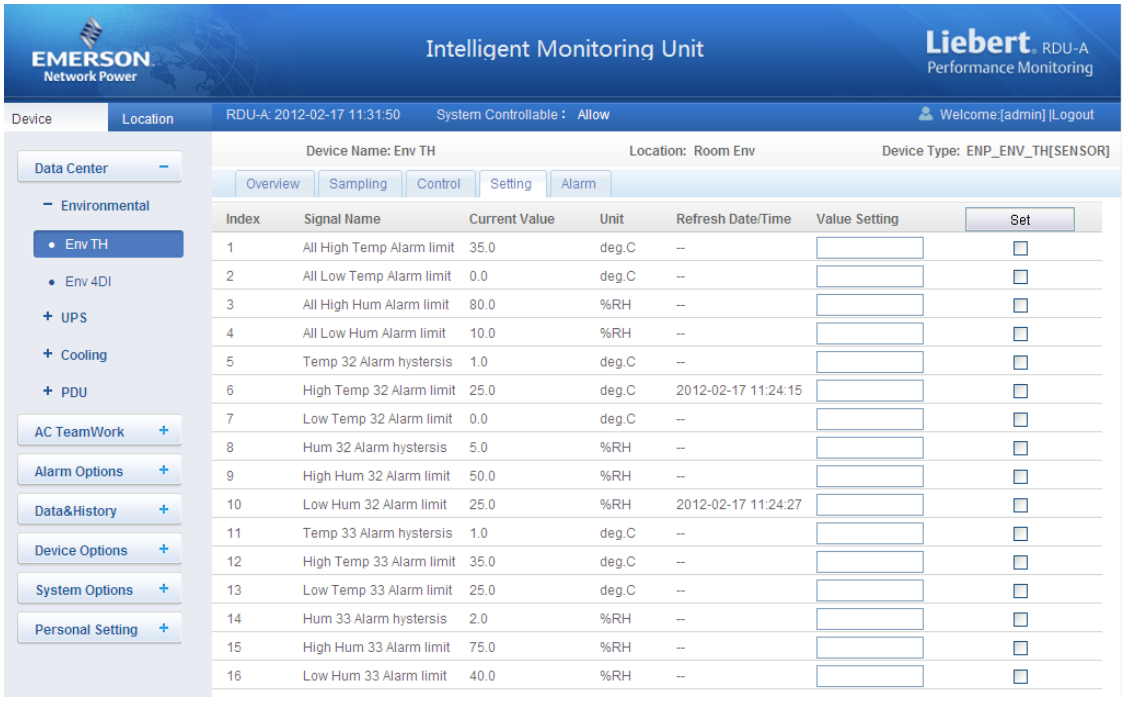

EMERSON Network Power
Intelligent Monitoring Unit
Liebert RDU-A Performance Monitoring
Device
Location
RDU-A: 2012-02-17 11:31:50
System Controllable : Allow
Welcome:[admin] |Logout
Data Center
Environmental
Env TH
Env 4DI
UPS
Cooling
PDU
AC TeamWork
Alarm Options
Data&History
Device Options
System Options
Personal Setting
Device Name: Env TH
Location: Room Env
Device Type: ENP_ENV_TH[SENSOR]
Overview
Sampling
Control
Setting
Alarm
Index
Signal Name
Current Value
Unit
Refresh Date/Time
Value Setting
Set
1 All High Temp Alarm limit 35.0 deg.C --
2 All Low Temp Alarm limit 0.0 deg.C --
3 All High Hum Alarm limit 80.0 %RH --
4 All Low Hum Alarm limit 10.0 %RH --
5 Temp 32 Alarm hystersis 1.0 deg.C --
6 High Temp 32 Alarm limit 25.0 deg.C 2012-02-17 11:24:15
7 Low Temp 32 Alarm limit 0.0 deg.C --
8 Hum 32 Alarm hystersis 5.0 %RH --
9 High Hum 32 Alarm limit 50.0 %RH --
10 Low Hum 32 Alarm limit 25.0 %RH 2012-02-17 11:24:27
11 Temp 33 Alarm hystersis 1.0 deg.C --
12 High Temp 33 Alarm limit 35.0 deg.C --
13 Low Temp 33 Alarm limit 25.0 deg.C --
14 Hum 33 Alarm hystersis 2.0 %RH --
15 High Hum 33 Alarm limit 75.0 %RH --
16 Low Hum 33 Alarm limit 40.0 %RH --

Figure 4-10 Env TH (Setting)

As shown in Figure 4-10, you can set the parameters of the intelligent temperature sensor and intelligent temperature & humidity sensor. For example, in the **Value Setting** textbox of **High Temp 32 Alarm limit**, type a value ranging from '- 10.0' to '60.0', tick the check box behind and click the **Set** button to make the setting effective.

As for the setting signals of **Env TH**, the descriptions are as follows:

1. The high or low alarm limit value of all the intelligent temperature sensors and intelligent temperature & humidity sensors, which are connected with the RDU-A in normal communication, can be configured as the same value at one time. For example, in the **Value Setting** textbox of **All High Temp Alarm limit**, type a value ranging from '- 10.0' to '60.0', tick the check box behind and click the **Set** button to make the setting effective.

2. When the intelligent temperature sensor or intelligent temperature & humidity sensor fails in communication, the check box of the setting signal will turn gray and cannot be ticked, as shown in Figure 4-10.

Click the **Alarm** button to view the alarm signal of **Env TH**, as shown in Figure 4-11.

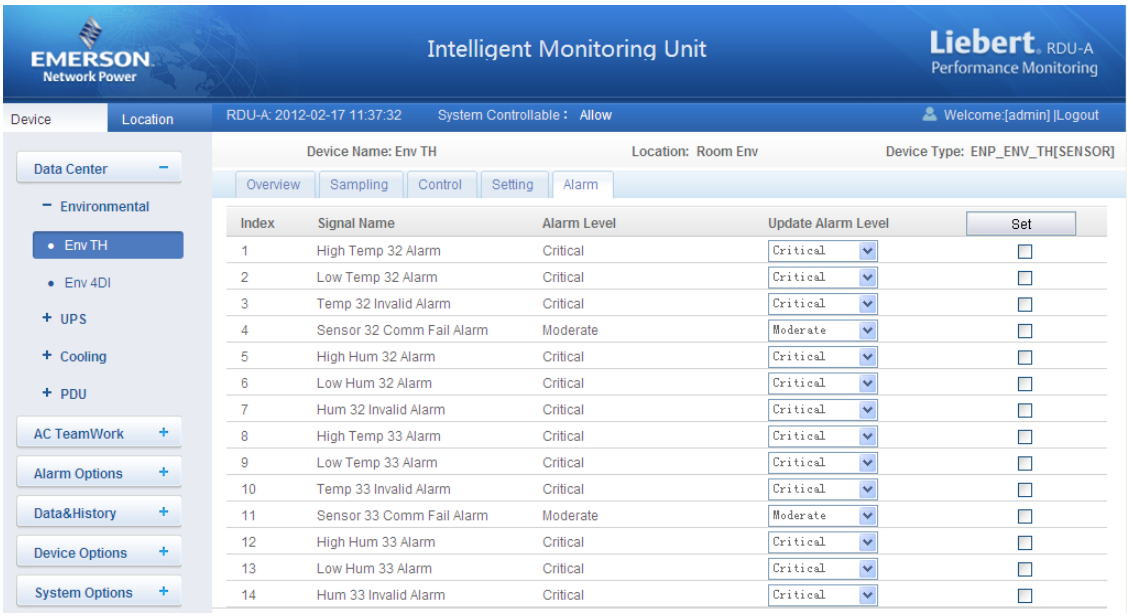
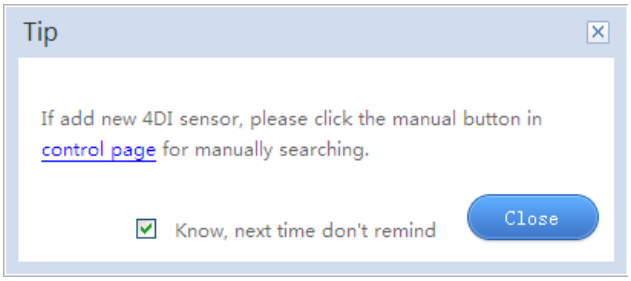


Figure 4-11 Env TH (Alarm)

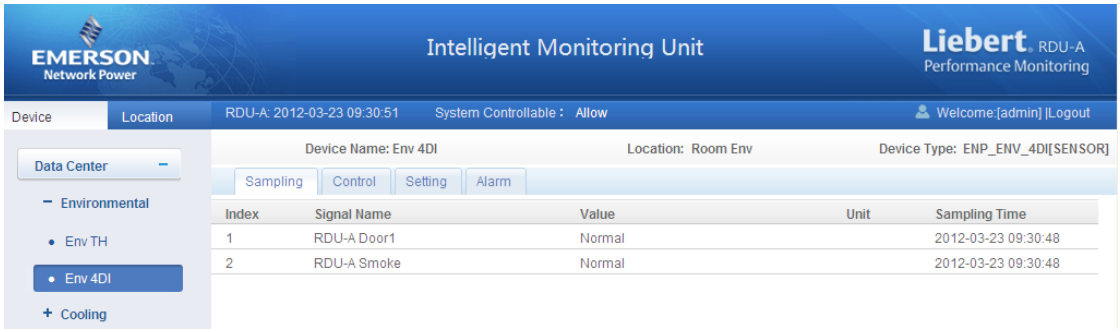
On the alarm signal page shown in Figure 4-11, you can modify the alarm level of various alarm signals, tick the check box behind and click the **Set** button to make the setting effective.

Env 4DI

Click the submenu **Env 4DI** or the Env 4DI picture shown in Figure 4-6, a prompt window pops up, as shown below. Clicking the **control page** link enters the control page of Env 4DI, as shown in Figure 4-13; clicking the **Close** button displays the sample page of Env 4DI, as shown in Figure 4-12.


Tip
If add new 4DI sensor, please click the manual button in control page for manually searching.
Know, next time don't remind
Close

Prompt window



Sample page

Figure 4-12 Env 4DI

As shown in Figure 4-12, you can view the information of the physical sensors (door status, water and smoke) and all intelligent digital input sensors connected with the RDU-A. For example, **User 4DI 61DI1** means the input status of DI1 port of the intelligent digital input sensor (user-defined), whose DIP address is 61 (6 is the group address, and 1 is the serial number in the group).

As for the sample signals of **Env 4DI**, the descriptions are as follows:

1. For the convenience of signal edit, it is suggested to configure the group address of the intelligent digital input sensor as the rack number; the serial number in the group can be used to distinguish their specific positions, such as front and back.

2. For the unconnected intelligent digital input sensors, the corresponding digital signals will not be displayed on the RDU-A page.

Click the **Control** button to view the control signal of **Env 4DI**, as shown in Figure 4-13.

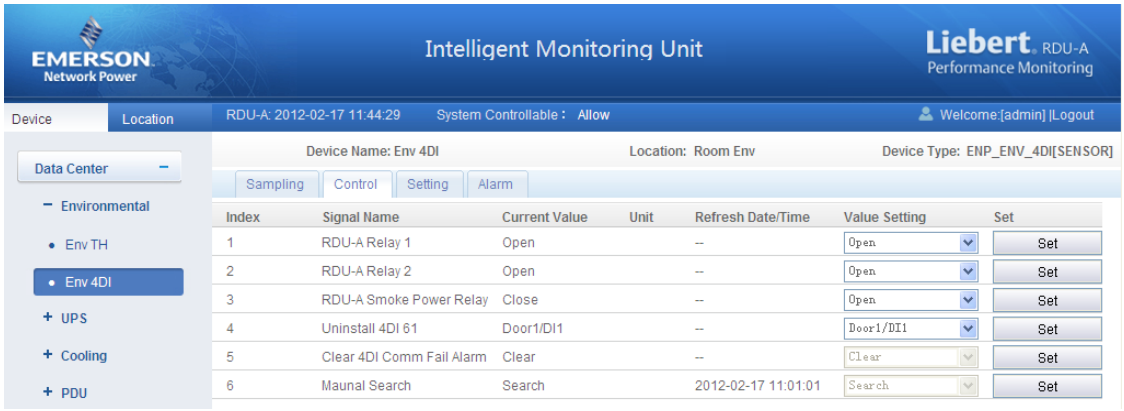


Figure 4-13 Env 4DI (Control)

As shown in Figure 4-13, the page displays the control signal of **Env 4DI**, you can send control command to the corresponding equipment.

Taking **Uninstall 4DI 61** and **Clear 4DI Comm Fail Alarm** as examples:

If users pull out the physical sensors connected with the intelligent digital input sensor without sending uninstall command, the system will generate a 'Leave' alarm, as shown in Figure 4-12. Users can send the uninstall command to clear the 'Leave' alarm, for example, in the **Set value** textbox of **Uninstall 4DI 61**, select the digital input port of the intelligent digital input sensor, for instance, **Door1/DI1**, and click the **Set** button, the physical sensor connected to the Door1/DI1 port of 4DI 61 intelligent digital input sensor will be uninstalled.

In the **Set value** textbox of **Clear 4DI Comm Fail Alarm**, choose **Clear** and click the **Set** button, other signals of the intelligent digital input sensor will all be cleared, including the sample signal, control signal and setting signal.

Click the **Setting** button to view the setting signals of **Env 4DI**, as shown in Figure 4-14.

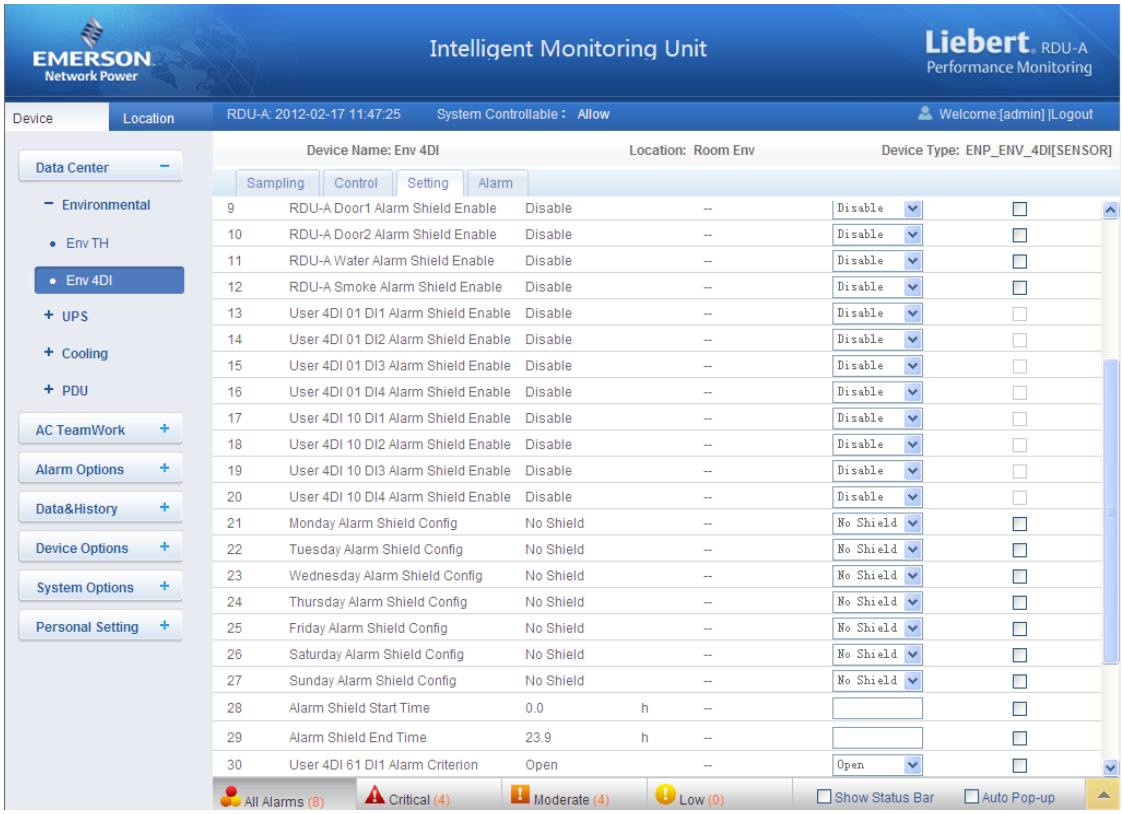

EMERSON Network Power
Intelligent Monitoring Unit
Liebert RDU-A Performance Monitoring
Device
Location
RDU-A: 2012-02-17 11:47:25
System Controllable : Allow
Welcome:[admin] |Logout
Device Name: Env 4DI
Location: Room Env
Device Type: ENP_ENV_4DI[SENSOR]
Sampling
Control
Setting
Alarm
Data Center
Environmental
Env TH
Env 4DI
UPS
Cooling
PDU
AC TeamWork
Alarm Options
Data&History
Device Options
System Options
Personal Setting
9 RDU-A Door1 Alarm Shield Enable Disable
10 RDU-A Door2 Alarm Shield Enable Disable
11 RDU-A Water Alarm Shield Enable Disable
12 RDU-A Smoke Alarm Shield Enable Disable
13 User 4DI 01 DI1 Alarm Shield Enable Disable
14 User 4DI 01 DI2 Alarm Shield Enable Disable
15 User 4DI 01 DI3 Alarm Shield Enable Disable
16 User 4DI 01 DI4 Alarm Shield Enable Disable
17 User 4DI 10 DI1 Alarm Shield Enable Disable
18 User 4DI 10 DI2 Alarm Shield Enable Disable
19 User 4DI 10 DI3 Alarm Shield Enable Disable
20 User 4DI 10 DI4 Alarm Shield Enable Disable
21 Monday Alarm Shield Config No Shield
22 Tuesday Alarm Shield Config No Shield
23 Wednesday Alarm Shield Config No Shield
24 Thursday Alarm Shield Config No Shield
25 Friday Alarm Shield Config No Shield
26 Saturday Alarm Shield Config No Shield
27 Sunday Alarm Shield Config No Shield
28 Alarm Shield Start Time 0.0 h
29 Alarm Shield End Time 23.9 h
30 User 4DI 61 DI1 Alarm Criterion Open
All Alarms (8)
Critical (4)
Moderate (4)
Low (0)
Show Status Bar
Auto Pop-up

Figure 4-14 Env 4DI (Setting)

On the page shown in Figure 4-14, you can set the parameters of the intelligent digital input sensor. For example, in the drop-down box of **Value Setting** for **User 4DI 61 DI1 Alarm Criterion**, you can set it as 'Open' or 'Close', tick the check box and click the **Set** button to make the setting effective.

You can shield some alarm information during a period of time through alarm shield function. The alarm information includes four routes of digital input data on the RDU-A and eight routes of digital input data of User 4DI sensors whose address is 01 and 10. For example, you need to shield RDU-A Door1 Alarm during 8:00 ~ 17:00 on Monday, so, set **RDU-A Door1 Alarm Shield Enable** as 'Enable', set **Monday Alarm Shield Config** as 'Shield By Time', and set **Alarm Shield Start Time** and **Alarm Shield End Time** as '8:00' and '17:00'. After the setting, during 8:00 ~ 17:00 on Monday, no alarm will be generated when the RDU-A Door1 is open.

Note

The intelligent sensors cannot have the same DIP address when they are connected with the same RDU-A.

Click the **Alarm** button to view the alarm signal of **Env 4DI**, as shown in Figure 4-15.

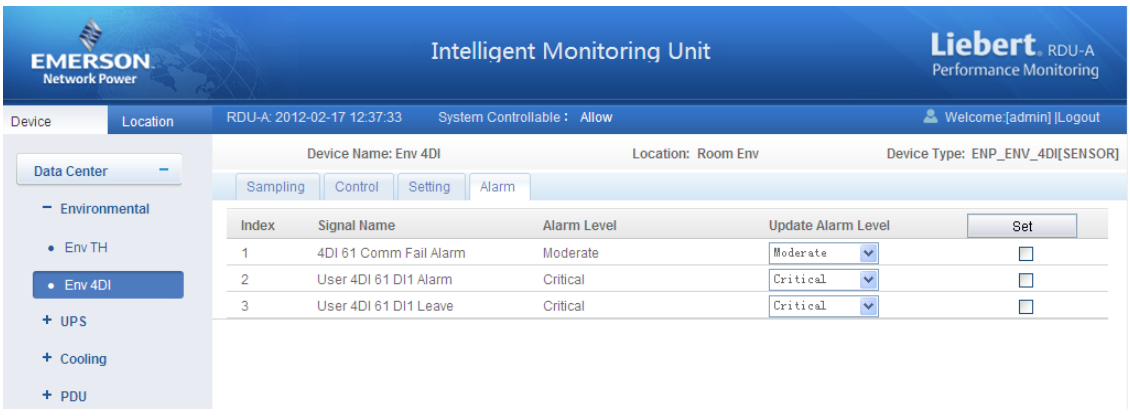


Figure 4-15 Env 4DI (Alarm)

On the alarm signal page shown in Figure 4-15, you can modify the alarm level of various alarm signals, tick the check box behind and click the **Set** button to make the setting effective.

Camera View

Click the **Camera View** submenu under the **Data Room** menu, the page shown in Figure 4-16 pops up.

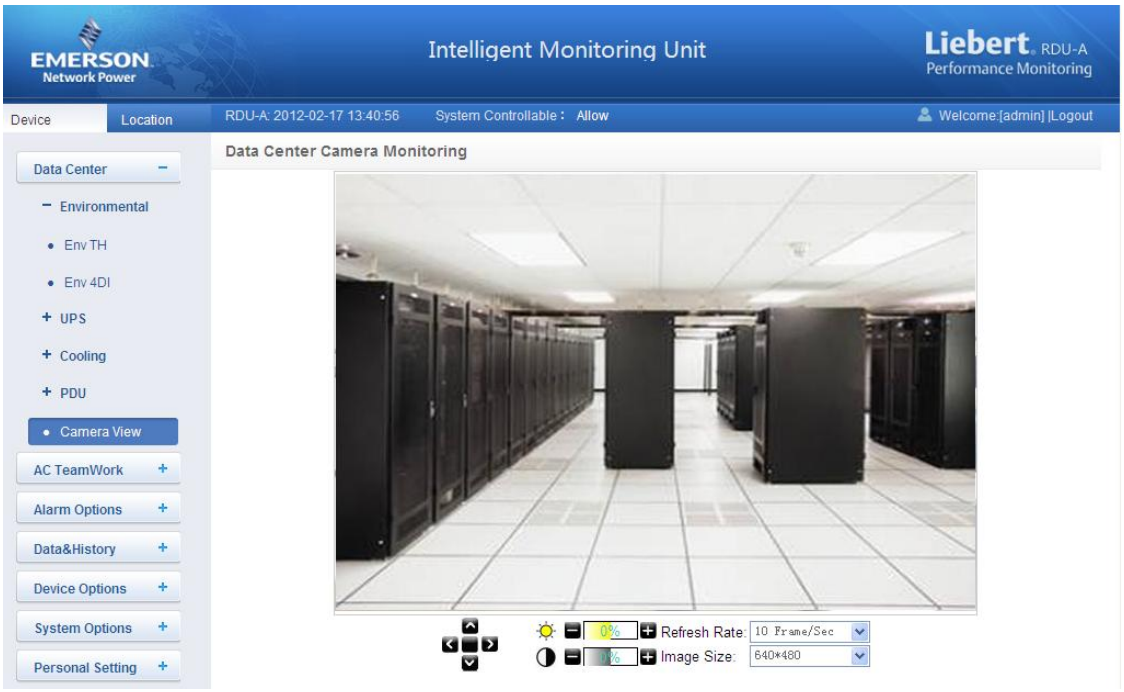


Figure 4-16 Camera view

The icon is used to adjust the camera turning; −50% is used to adjust the picture bright; −50% is used to adjust the picture contrast; **Refresh Rate** and **Camera Size** can be selected through the drop-down boxes.

Note

1. The function of adjusting the camera turning is only for the RDU-A dedicated camera which has the turning function;
2. When using the camera view function, please check and ensure that JRE is installed (version: 1.5.0 or above).

4.6.2 AC TeamWork

The AC teamwork function is used to monitor and control each AC which participates in the AC teamwork according to a certain rule, to achieve the goals of reducing AC power consumption, prolonging AC life-span and avoiding competition among ACs in the team.

On the RDU-A homepage, click the **AC TeamWork** menu in the left, two submenus will appear, including **TeamWork Status** and **TeamWork Setting**.

TeamWork Status

Click the **TeamWork Status** submenu under the **AC TeamWork** menu, the page shown in Figure 4-17 pops up.

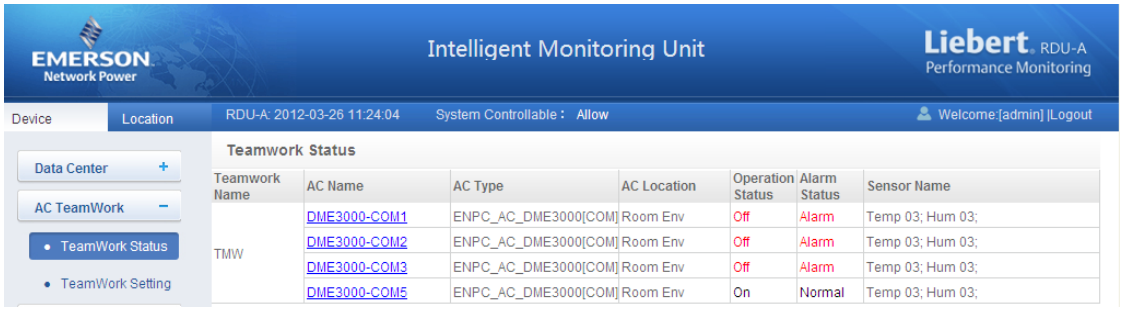


Figure 4-17 TeamWork status page (AC has been configured)

The TeamWork status page displays the main AC running parameters in all AC teams.

TeamWork Setting

Note

The AC Teamwork function of RDU-A is available in three versions: standard version, enhanced version and advanced version. The standard version has the AC Teamwork function configured with the RDU-A standard software; the enhanced version and the advanced version are software versions which need to be purchased separately.

1. Teamwork Parameters

Click the **TeamWork Setting** submenu under the **AC TeamWork** menu, the teamwork parameters setting page pops up, as shown in Figure 4-18.

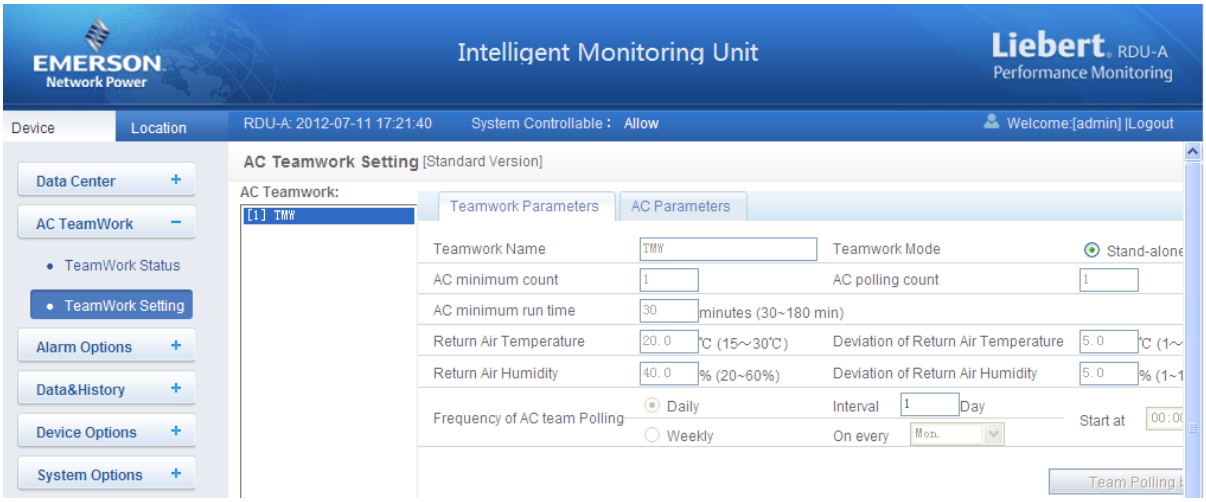


Figure 4-18 Teamwork parameters setting page (RDU-A standard version)

As for the AC Teamwork function of RDU-A standard version, the descriptions are as follows:

1) The AC Teamwork function only supports one AC team, **[1]TMW** by default, without adding and deleting functions;

2) Some parameters on the teamwork parameters setting page are prohibited for use (see Table 4-1);

3) Only four Emerson DME series ACs with standard configuration are supported by default.

Table 4-1 Parameters on the teamwork parameters setting page

Team parameters	Default	Low limit	Upper limit	Notes	Settable for RDU-A standard version
Teamwork Mode	Single-alone	Single-alone (0)	Teamwork (1)	Single-alone (0): Each AC in the team operates separately; Teamwork (1): Each AC in the team participates in team Boolean calculation	√
AC minimum count	1	1	AC number in the team	/	
AC polling count	1	1	Lower value between the running AC number and the backup AC number	/	
AC minimum run time	30	30	180	Unit: min	
Return air temperature	20	15	30	Unit: °C	√
Deviation of return air temperature	5	1	5	Unit: °C	√
Return air humidity	40%	20%	60%	/	
Deviation of return air humidity	5%	1%	10%	/	
Frequency of AC team polling	0	Daily, Weekly		/	√
Interval	1	1	30	Daily mode	√

Team parameters	Default	Low limit	Upper limit	Notes	Settable for RDU-A standard version
On every	1	1	7	Weekly mode Mon, Tue, Wed, Thur, Fri, Sat, Sun	√
Start at	00:00	00:00	23:00	/	√
Team polling by manual	No	No	Yes	Used for test	√

The RDU-A enhanced version and advanced version provide functions of adding, editing and deleting AC team. The page operation is as follows:

Click the **TeamWork Setting** submenu under the **AC TeamWork** menu, the teamwork parameters setting page pops up, as shown in Figure 4-19.

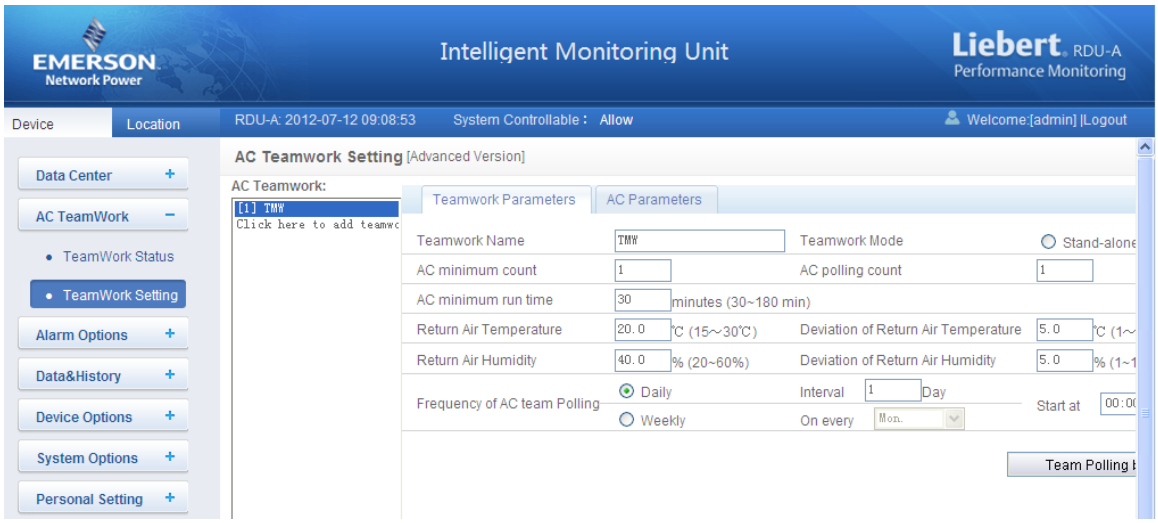


Figure 4-19 Teamwork parameters setting page (RDU-A advanced version)

On the page shown in Figure 4-19, you can add, edit and delete AC team.

1) Click the **Click here to add teamwork** link in the **AC Teamwork** list, you can add a new AC team. The RDU-A supports eight AC teams at most;

2) Set the relevant parameters of the newly-added team on the teamwork parameters setting page, see Table 4-1;

3) Add, edit or delete AC in the team on the AC parameters setting page, refer to *2. AC Parameters* in this section;

4) After finishing the above operations, click the **Add** button (see Figure 4-20) to save the setting. At this time, the added team will appear in the left **AC Teamwork** list;

5) Select the AC team which needs to be edited in the **AC Teamwork** list. Similar to the adding team procedures, edit the team parameters on the teamwork parameters setting page, and set the AC parameters in the team on the AC parameters setting page. After editing, click the **Modify** button (see Figure 4-20) to save the setting;

6) Select the AC team which needs to be deleted in the **AC Teamwork** list, and click the **Delete** button (see Figure 4-20) to save the setting.

If you need the RDU-A advanced version, please contact the Emerson customer service center and purchase it. The contact telephone number is 4008876510.

Note

The enhanced version and advanced version of RDU-A AC Teamwork function differ only in the aspect of supported AC number: the enhanced version supports eight ACs to participate in the teamwork at most; the advanced version supports sixteen ACs to participate in the teamwork at most.

2. AC Parameters

Click the **TeamWork Setting** submenu under the **AC TeamWork** menu, and then click the **AC Parameters** button, the AC parameters setting page pops up, as shown in Figure 4-20.

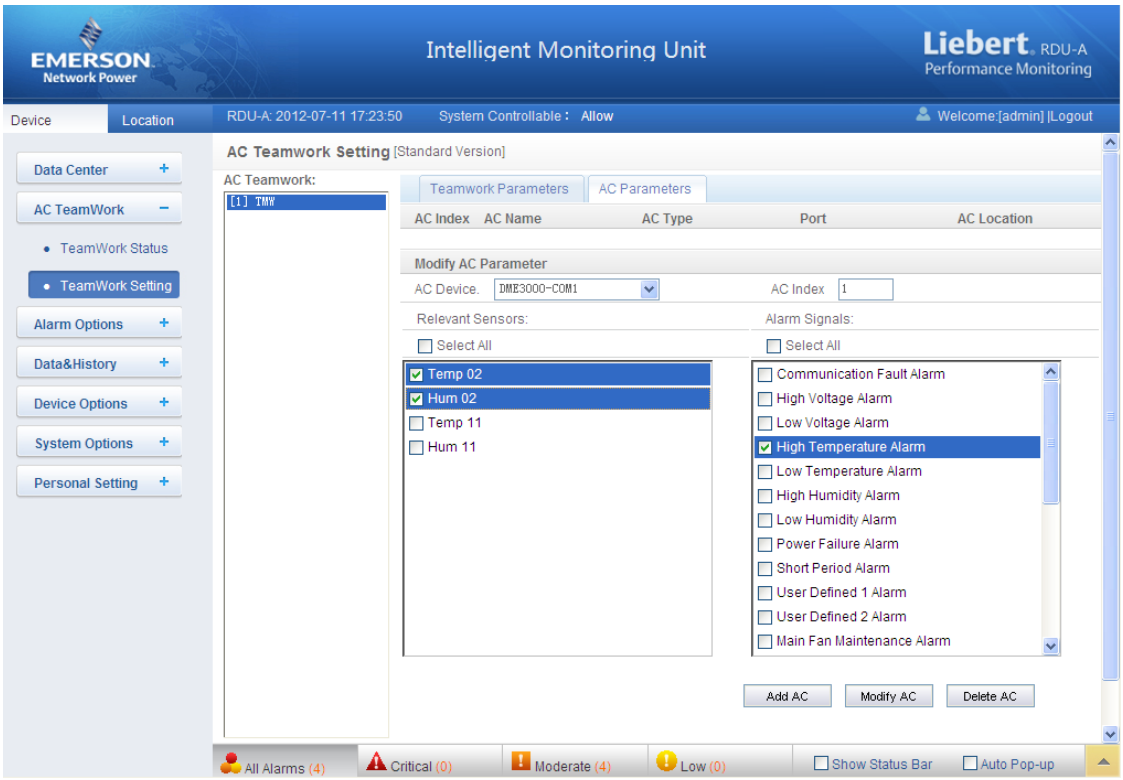


Figure 4-20 AC parameters setting page

On the AC parameters setting page, you can add, edit and delete AC in the team.

The procedures for adding an AC are as follows:

1) Select the AC which needs to participate in teamwork from the drop-down box of **AC Device**;

2) In the **AC Index** field, type the index of the AC in the team;

Note

The AC index cannot be set larger than the AC number of the team.

3) Set the temperature sensors and temperature & humidity sensors related to the AC. Each AC can be related to relevant signals of at most five temperature sensors and temperature & humidity sensors. When a high temperature alarm or a fault occurs to any one of the related sensors, if the AC is closed at that time, it will start up;

4) Set **Alarm Signals**, that is, when the selected alarm signals are generated, judge that the AC is faulty or cannot be used. At most 15 fault or alarm signals can be set for each AC, and the default fault or alarm signals include: High Temperature Alarm, High Pressure Lock, Low Pressure Lock and Exhaust Lock.

5) Click the **Add AC** button to add an AC, as shown in Figure 4-21.

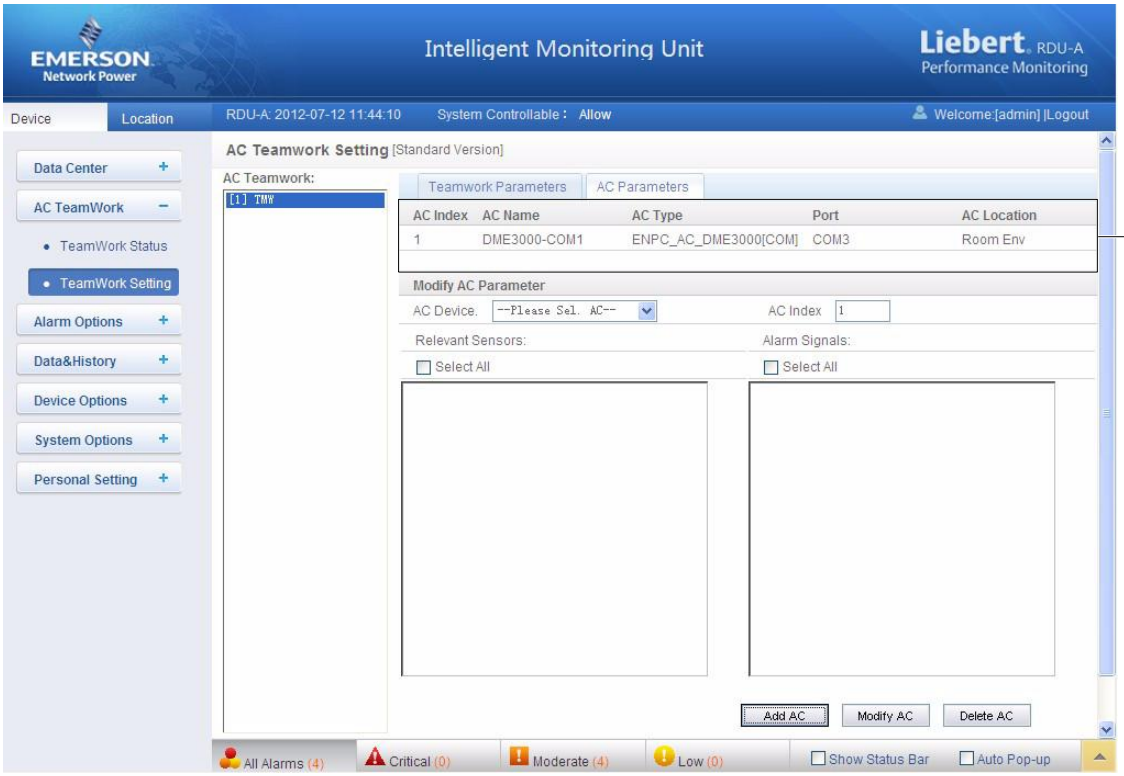


Figure 4-21 The AC has been added

The procedures for editing an AC are as follows:

Select the AC which needs to be edited, and edit the AC rotate index, related temperature & humidity sensors and AC fault or alarm signals. After editing, click the **Modify AC** button to save the setting.

The procedures for deleting an AC are as follows:

Select the AC which needs to be deleted, and click the **Delete AC** button to save the setting.

4.6.3 Alarm Options

Show Alarm

On any page, click the icon in the lower right corner of the page, the alarm information will pop up from bottom to top at the lower part of the page, as shown in Figure 4-22.

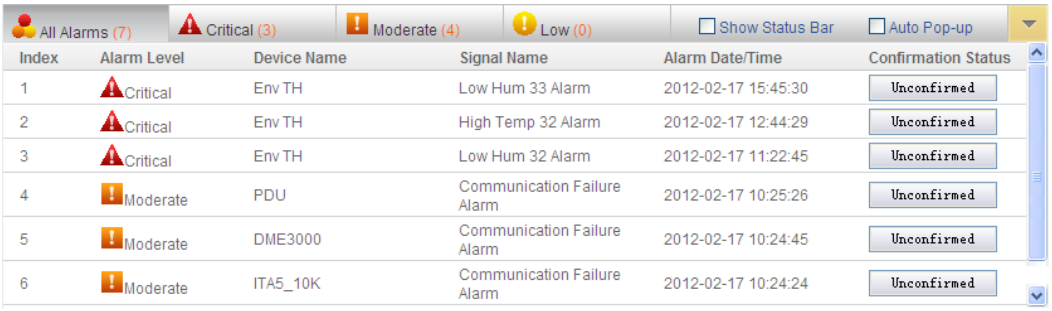

All Alarms (7)
Critical (3)
Moderate (4)
Low (0)
Show Status Bar
Auto Pop-up
Index
Alarm Level
Device Name
Signal Name
Alarm Date/Time
Confirmation Status
1 Critical Env TH Low Hum 33 Alarm 2012-02-17 15:45:30 Unconfirmed
2 Critical Env TH High Temp 32 Alarm 2012-02-17 12:44:29 Unconfirmed
3 Critical Env TH Low Hum 32 Alarm 2012-02-17 11:22:45 Unconfirmed
4 Moderate PDU Communication Failure Alarm 2012-02-17 10:25:26 Unconfirmed
5 Moderate DME3000 Communication Failure Alarm 2012-02-17 10:24:45 Unconfirmed
6 Moderate ITA5_10K Communication Failure Alarm 2012-02-17 10:24:24 Unconfirmed

Figure 4-22 Alarm information

As shown in Figure 4-22, the page displays all current alarm information, meanwhile, the icon becomes . When clicking the icon , the page will hide all current alarm information.

If the **Auto Pop-up** is tick and the icon is selected to hide the alarms, all the alarm information will pop up automatically when a new alarm is generated.

Click the **Unconfirmed** button to confirm the alarm, as shown in Figure 4-23. The confirmed alarm will not participate in alarm linkage, and the alarm notification will be sent only once.

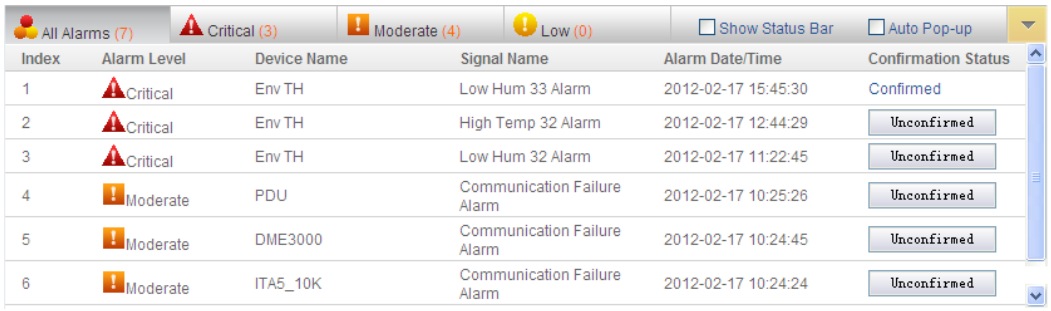

All Alarms (7)
Critical (3)
Moderate (4)
Low (0)
Show Status Bar
Auto Pop-up
Index
Alarm Level
Device Name
Signal Name
Alarm Date/Time
Confirmation Status
1 Critical Env TH Low Hum 33 Alarm 2012-02-17 15:45:30 Confirmed
2 Critical Env TH High Temp 32 Alarm 2012-02-17 12:44:29 Unconfirmed
3 Critical Env TH Low Hum 32 Alarm 2012-02-17 11:22:45 Unconfirmed
4 Moderate PDU Communication Failure Alarm 2012-02-17 10:25:26 Unconfirmed
5 Moderate DME3000 Communication Failure Alarm 2012-02-17 10:24:45 Unconfirmed
6 Moderate ITA5_10K Communication Failure Alarm 2012-02-17 10:24:24 Unconfirmed

Figure 4-23 Confirm the alarm

Click the **Critical** button to show all the critical alarms, as shown in Figure 4-24.

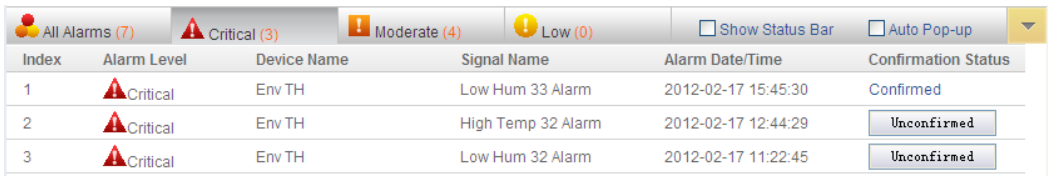


Figure 4-24 Critical alarm

In the same way, click **Moderate** to display all the moderate alarms and click **Low** to display all the low alarms. The low alarm is displayed in yellow; the moderate alarm is displayed in orange; the critical alarm is displayed in red.

Current Alarm

Click **Alarm Options** in the menu items, four submenus appear, including **Current Alarm**, **History Alarm**, **Alarm Notification** and **Actions**.

Clicking **Current Alarm** has the same effect as clicking the icon , refer to *Display Alarm* for detailed information.

History Alarm

Click **History Alarm** under the **Alarm Options** menu to look over historical alarm records. Select a device (for instance, 'All Device') and set the start time and end time (for instance, from 2012-02-17 12:00:00 to 2012-02-17 14:00:00). Then click the **Query** button, all alarm records generated between the start time and end time will be listed, including: Index, Device name, Signal Name, Alarm Level, Start Date/Time, Confirmed by, Confirmed on Date/Time and End Date/Time, as shown in Figure 4-25.

Click the **Download** button to download the query results.

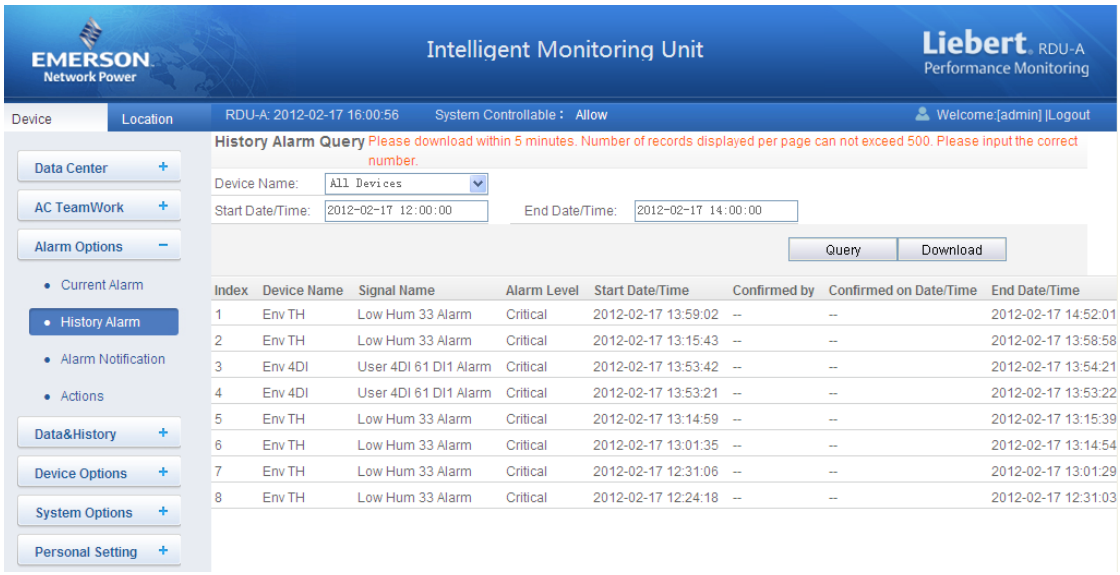

EMERSON Network Power
Intelligent Monitoring Unit
Liebert. RDU-A Performance Monitoring
Device
Location
RDU-A: 2012-02-17 16:00:56
System Controllable : Allow
Welcome:[admin] |Logout
Data Center
AC TeamWork
Alarm Options
Current Alarm
History Alarm
Alarm Notification
Actions
Data&History
Device Options
System Options
Personal Setting
History Alarm Query
Please download within 5 minutes. Number of records displayed per page can not exceed 500. Please input the correct number.
Device Name: All Devices
Start Date/Time: 2012-02-17 12:00:00
End Date/Time: 2012-02-17 14:00:00
Query
Download
Index Device Name Signal Name Alarm Level Start Date/Time Confirmed by Confirmed on Date/Time End Date/Time
1 Env TH Low Hum 33 Alarm Critical 2012-02-17 13:59:02 -- -- 2012-02-17 14:52:01
2 Env TH Low Hum 33 Alarm Critical 2012-02-17 13:15:43 -- -- 2012-02-17 13:58:58
3 Env 4DI User 4DI 61 DI1 Alarm Critical 2012-02-17 13:53:42 -- -- 2012-02-17 13:54:21
4 Env 4DI User 4DI 61 DI1 Alarm Critical 2012-02-17 13:53:21 -- -- 2012-02-17 13:53:22
5 Env TH Low Hum 33 Alarm Critical 2012-02-17 13:14:59 -- -- 2012-02-17 13:15:39
6 Env TH Low Hum 33 Alarm Critical 2012-02-17 13:01:35 -- -- 2012-02-17 13:14:54
7 Env TH Low Hum 33 Alarm Critical 2012-02-17 12:31:06 -- -- 2012-02-17 13:01:29
8 Env TH Low Hum 33 Alarm Critical 2012-02-17 12:24:18 -- -- 2012-02-17 12:31:03

Figure 4-25 History alarm query

Alarm Notification

1. Alarm Notification Configuration

Click the **Alarm Notification** submenu under the **Alarm Options** menu, the page shown in Figure 4-26 pops up. You can choose the notification method to receive notification of chosen level alarm from chosen equipment, meanwhile, you can also choose the language of alarm notification information and customize the alarm content (including Equip name, Alarm description, Alarm TIME and Alarm state by default).

Click the **Save** button to finish the alarm configuration. When an alarm is generated, the system will notify users through the chosen notification method.

Note

1. Users must tick the notification method first in the **Notification by** check boxes, and then the alarm table below can be edited;
2. When **Select All** is chosen, all devices will be configured with the same alarm level;
3. When low level alarm is chosen, the alarm level above this level will also be chosen;
4. When some device is chosen, the highest level **Critical Alarm** will be chosen by default.

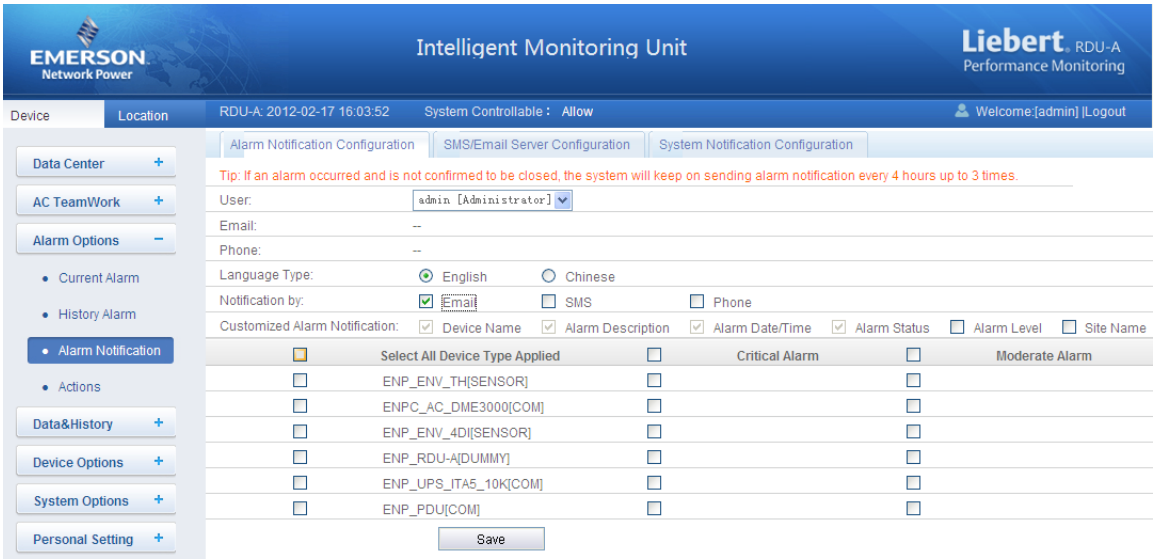


Figure 4-26 Alarm notification configuration

2. SMS/Email Server Configuration

Click the **Alarm Notification** submenu under the **Alarm Options** menu, and then click the **SMS/Email Server Configuration** button, the page shown in Figure 4-27 pops up.

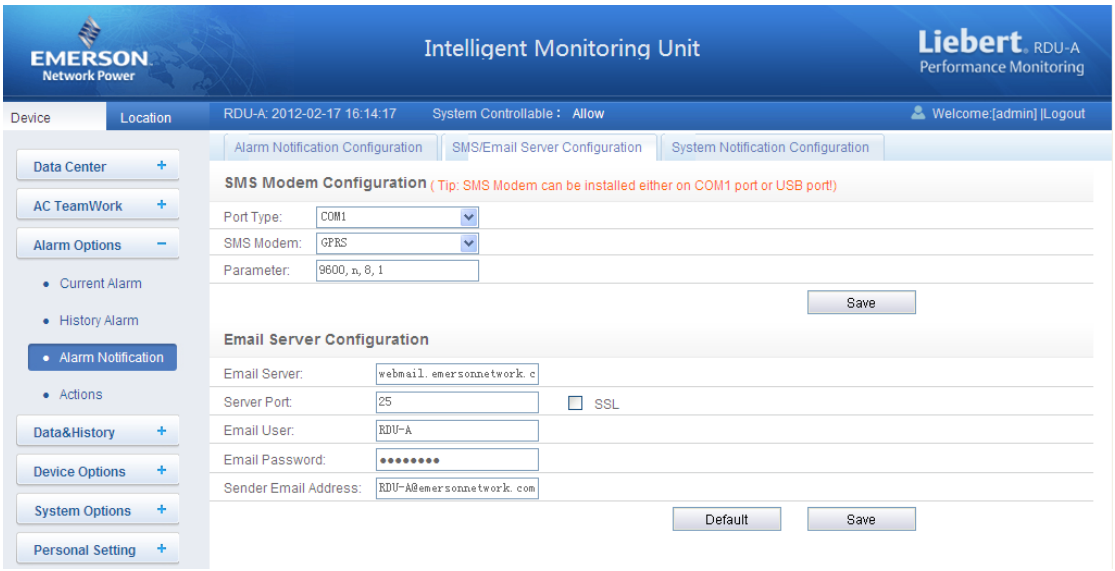


Figure 4-27 SMS/Email server configuration

On the page shown in Figure 4-27, you can configure the SMS/Email server of the current user, the procedures are as follows:

●SMS Modem Configuration

1) Connect an SMS Modem through COM1 port or USB port according to need, and choose **Port Type**, the page will display **Parameter** automatically;

2) Choose **SMS Modem** (GPRS/CDMA) according to the SMS Modem type;

3) Set the communication parameter of the SMS Modem;

4) Click the **Save** button to save the configuration of current user's SMS Modem.

Note

1. If the SMS Modem is connected through COM1 port, set the communication parameter of the SMS Modem as '9600,n,8,1' before using it, the setting procedures are as follows:

1) Login the Modem through PC Terminal, and type AT&V command to view the current baud rate;

2) Set the baud rate of the Modem: type the command: AT+IPR=9600;

3) In the condition that the Modem is not powered off, set the terminal baud rate as 9600bps, and re-login the Modem;

4) Type AT&V command to save the configuration;

5) Validate the setting: power off the Modem and re-power on it, view the current baud rate according to procedure 1.

2. If the SMS Modem is connected through USB port, use the default value of the communication parameter of the SMS Modem.

●Email Server Configuration

1) Type the server IP address or domain name in the **Email Server** field;

2). Type the **Server Port**, **Email User**, **Email Password** and **Sender Email Address** in the corresponding fields;

3) Click the **Save** button to save the configuration of current user's Email server.

Note

1. The **Server Port** is 25 by default. When SSL is chosen, the **Server Port** will become 465 automatically;

2. The **Email User** is RDU-A by default;

3. When using SSL, you need to ensure that the Email server supports SSL function.

3. System Notification Configuration

Click the **Alarm Notification** submenu under the **Alarm Options** menu, and then click the **System Notification Configuration** button, the page shown in Figure 4-28 pops up.

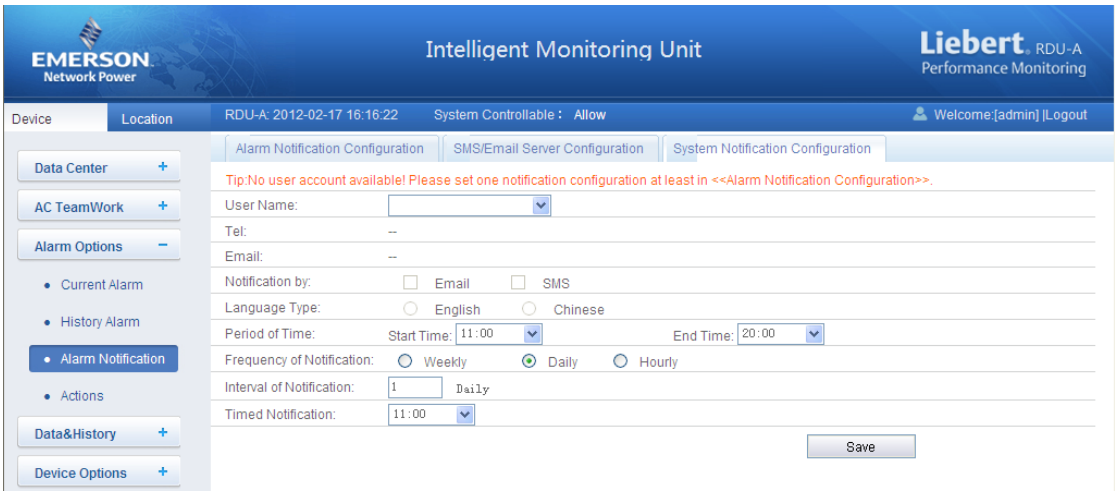


Figure 4-28 System notification configuration

Note

1. System notification configuration must be used together with alarm notification configuration, otherwise, you cannot select **User Name**, **Notification by** and **Language type**;

2. For system notification configuration, the notification method 'Phone' is not supported;

3. The system notification means sending the running state of the RDU-A system (normal or alarm) to the user.

1) First of all, on the **Alarm Notification Configuration** page, complete and save the setting of **User**, **Notification by** and **Language type**.

2) On the **System Notification Configuration** page, set the **Period of Time** (setting range: 8:00 ~ 20:00), **Frequency of Notification** (default: Hourly), **Interval of Notification** (default: 1) and **Timed Notification** (default: start time).

3) Click the **Save** button to save the system notification configuration.

Actions

Click the **Actions** submenu under the **Alarm Options** menu to obtain the alarm linkage function, the page shown in Figure 4-29 pops up.

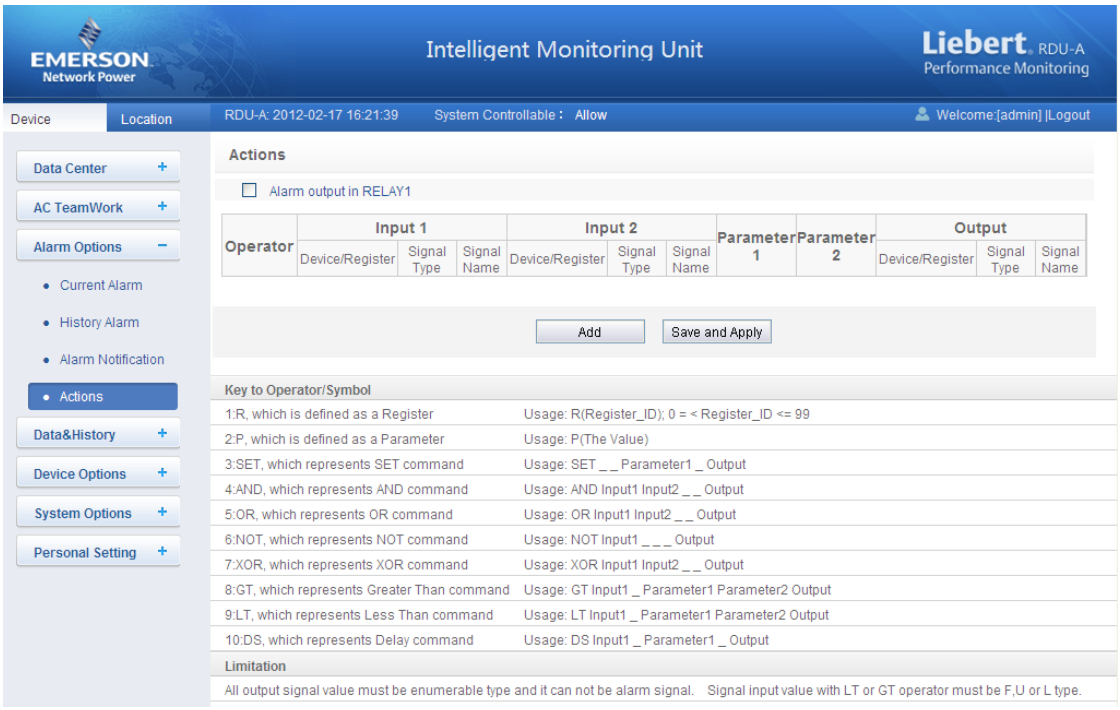

EMERSON Network Power
Intelligent Monitoring Unit
Liebert RDU-A Performance Monitoring
Device
Location
RDU-A: 2012-02-17 16:21:39
System Controllable : Allow
Welcome:[admin] |Logout
Data Center
AC TeamWork
Alarm Options
Current Alarm
History Alarm
Alarm Notification
Actions
Data&History
Device Options
System Options
Personal Setting
Actions
Alarm output in RELAY1
Operator
Input 1
Input 2
Parameter 1
Parameter 2
Output
Device/Register
Signal Type
Signal Name
Add
Save and Apply
Key to Operator/Symbol
1:R, which is defined as a Register
Usage: R(Register_ID); 0 = < Register_ID <= 99
2:P, which is defined as a Parameter
Usage: P(The Value)
3:SET, which represents SET command
Usage: SET _ _ Parameter1 _ Output
4:AND, which represents AND command
Usage: AND Input1 Input2 _ _ Output
5:OR, which represents OR command
Usage: OR Input1 Input2 _ _ Output
6:NOT, which represents NOT command
Usage: NOT Input1 _ _ _ Output
7:XOR, which represents XOR command
Usage: XOR Input1 Input2 _ _ Output
8:GT, which represents Greater Than command
Usage: GT Input1 _ Parameter1 Parameter2 Output
9:LT, which represents Less Than command
Usage: LT Input1 _ Parameter1 Parameter2 Output
10:DS, which represents Delay command
Usage: DS Input1 _ Parameter1 _ Output
Limitation
All output signal value must be enumerable type and it can not be alarm signal. Signal input value with LT or GT operator must be F,U or L type.

Figure 4-29 Alarm linkage configuration 1

●Alarm output in RELAY1

If **Alarm output in RELAY1** is ticked, the relay will control the output of Relay1 port separately. If the system has an alarm and the alarm has not been confirmed, the relay will be closed; if the system has no alarm or all alarms have been confirmed, the relay will be open, at this time, RELAY1 will not participate in alarm linkage any more.

●Linkage function

As shown in Figure 4-29, the **Key to Operator/Symbol** list shows all the commands and their usages. Click the **Add** button to add new alarm linkage expression, as shown in Figure 4-30.

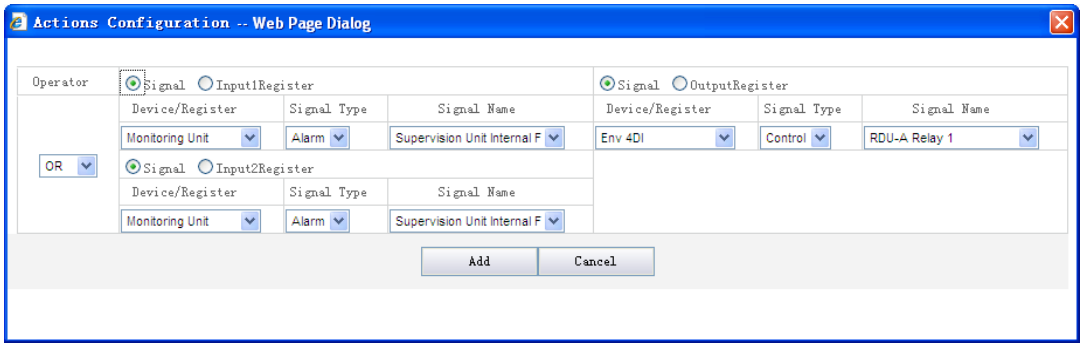


Figure 4-30 Alarm linkage configuration 2

As shown in Figure 4-30, different command has different expression and different parameters. Select a command first, for instance, 'OR'. In this case, the expression is 'signal 1 [Input1 Register] OR signal 2 [Input2 Register] = signal 3 [Output Register]'.

When **Signal** is chosen for the input and output parameters, firstly, choose the equip name from the drop-down lists of **Equip/Register**; secondly, choose the signal type from the drop-down lists of **Signal Type**; thirdly, choose the signal name from the drop-down lists of **Signal Name**; signal 1, 2, 3 can be any available signals of the RDU-A.

When **Register** is chosen for the parameters, users need to type the register name in the textbox of the register, for instance, R(0), R(1) and so on, as shown in Figure 4-31.

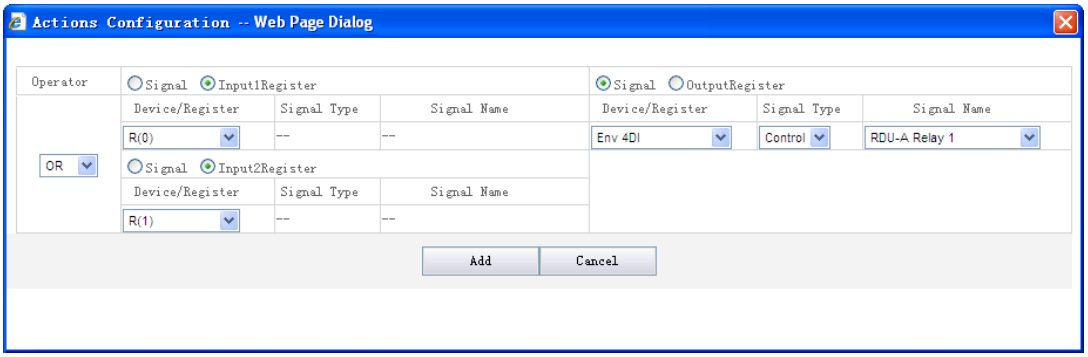


Figure 4-31 Alarm linkage configuration 3

Click the **Add** button to add the new alarm linkage expression, otherwise click the **Cancel** button.

As shown in Figure 4-32, an alarm linkage expression is added. Click the **Save and Apply** button to make it become effective. Click the **Delete** button to delete the PLC expression, and click the **Save and Apply** button to make the setting effective.

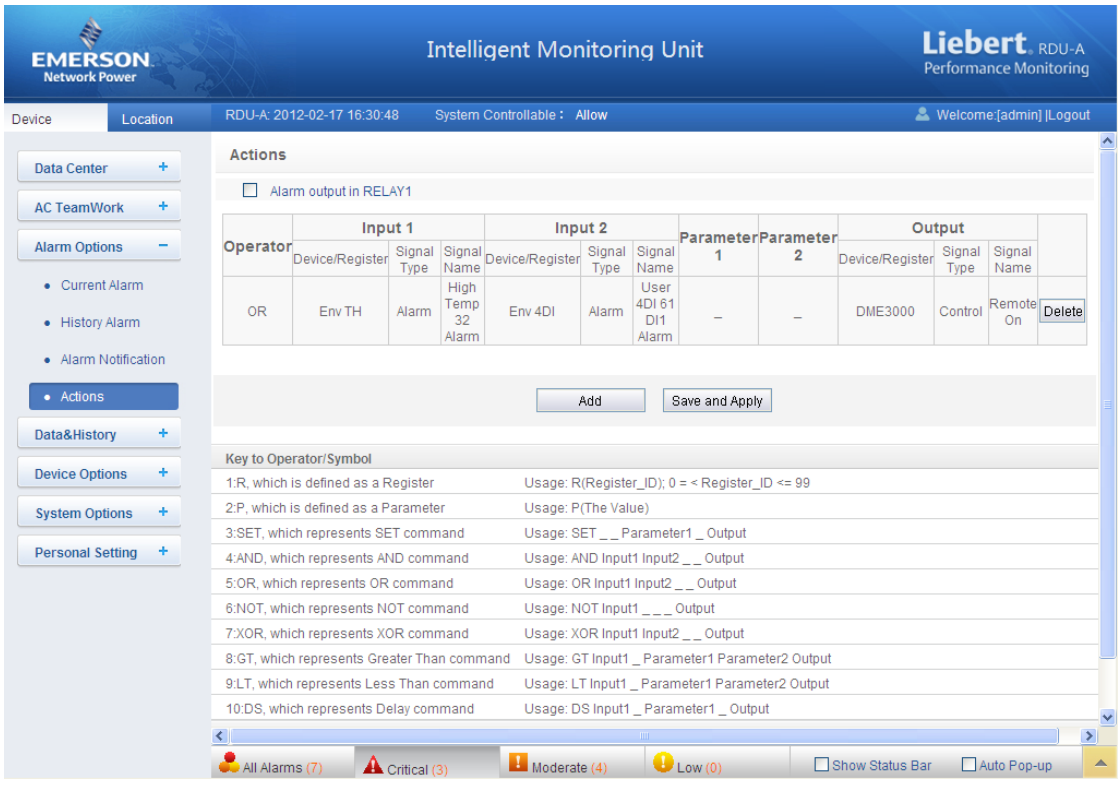


Figure 4-32 Alarm linkage configuration 3

The operator usages in the alarm linkage are listed in Table 4-2.

Table 4-2 Operator usages in the alarm linkage

Operator	Input 1	Input 2	Param1	Param2	Output	Expression
SET	/	/	P1	/	Sout/Rout	SET_ _P1_Output
AND	Sin1 /Rin1	Sin2 /Rin2	/	/	Sout/Rout	Sin1 [Rin1] AND Sin2 [Rin2] = Sout [Rout]
OR	Sin1 /Rin1	Sin2 /Rin2	/	/	Sout/Rout	Sin1 [Rin1] OR Sin2[Rin2] = Sout [Rout]
NOT	Sin1 /Rin1	/	/	/	Sout/Rout	Sin1 [Rin1] NOT = Sout [Rout]
XOR	Sin1 /Rin1	Sin2 /Rin2	/	/	Sout/Rout	Sin1 [Rin1] XOR Sin2[Rin2] = Sout [Rout]
GT	Sin1 /Rin1	/	P1	P2	Sout/Rout	When Sin1 [Rin1] > P1, Sout [Rout]=1; When Sin1 [Rin1] < P1 - P2, Sout [Rout]=0

Operator	Input 1	Input 2	Param1	Param2	Output	Expression
LT	Sin1 /Rin1	/	P1	P2	Sout/Rout	When Sin1 [Rin1] < P1, Sout [Rout]=1; When Sin1 [Rin1] > P1 + P2, Sout [Rout]=0
DS	Sin1 /Rin1	/	P1	/	Sout/Rout	Sin1 [Rin1] DS P1 output to Sout [Rout]
Note: 1. Sin1, Rin1, Sin2, Rin2, P1, P2, Sout, Rout respectively refer to Signal 1, Input1 Register, Signal 2, Input2 Register, Signal 3, Output Register; 2. The input signal of logic operator AND/OR/NOT/XOR/DS can only be alarm signal; 3. The input signal value of arithmetic operator GT/LT can only be float, int or long int; 4. All output signals can only be control signals, and the output signal value must be enumerated type						

The following illustrates the alarm linkage with examples:

Example 1:

If it is required that when the RDU-A system generates an alarm, the alarm indicator turns on. Suppose that the alarm indicator is mounted on the RELAY1 port, you can achieve the alarm linkage function through the following configuration:

Expression: [Supervision Unit Internal Fault] DS P(3) [RDU-A Relay 1]

The configuration method is shown in Figure 4-33. When the alarm signal of **Supervision Unit Internal Fault** generates an alarm, RDU-A Relay 1 will close after a delay of 3s, thus the alarm indicator turns on.

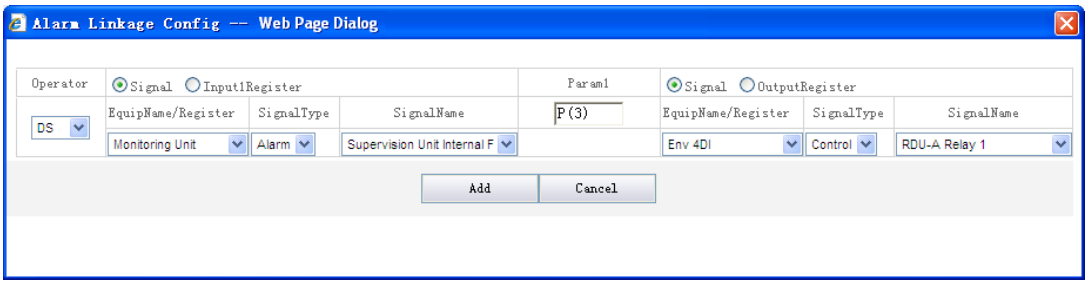


Figure 4-33 Example 1 for alarm linkage

Example 2:

If it is required that when the front door or back door of the rack is open, the alarm indicator turns on. Suppose that the DOOR1 and DOOR2 ports of the RDU-A are respectively connected with the door status sensors on the front and back door, and the alarm indicator is mounted on the RELAY1 port. You can achieve the alarm linkage function through the following configuration:

Expression: [RDU-A Door1 Opened] OR [RDU-A Door2 Opened] = [RDU-A Relay 1]

The configuration method is shown in Figure 4-34. When the alarm signal of **RDU-A Door1 Opened** or **RDU-A Door2 Opened** generates an alarm, RDU-A Relay 1 will close, thus the alarm indicator turns on.

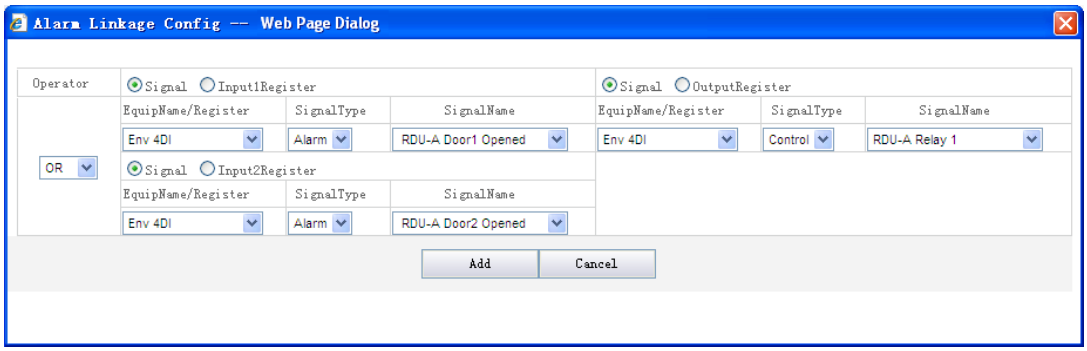


Figure 4-34 Example 2 for alarm linkage

4.6.4 Data & History

On the RDU-A homepage, click **Data & History** in the left part, four submenus appear, including: **Device Information**, **History Data**, **History Log** and **Clear History**.

Device Information

Click the **Device Information** submenu under the **Data & History** menu, the page shown in Figure 4-35 pops up.

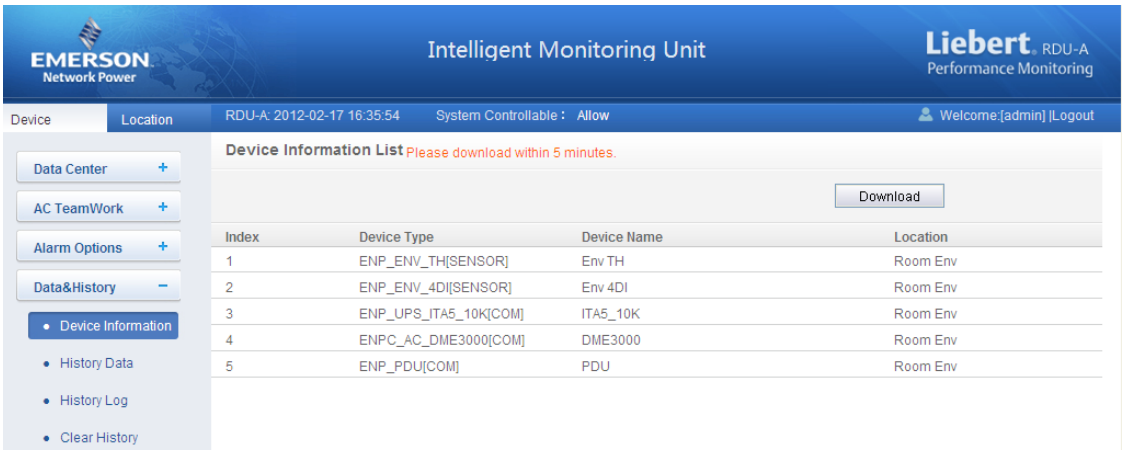


Figure 4-35 Device information

As shown in Figure 4-35, the page lists the main information of all equipment. Click the **Download** button to download the query result.

History Data

Click the **History Data** submenu under the **Data & History** menu, the page shown in Figure 4-36 pops up.

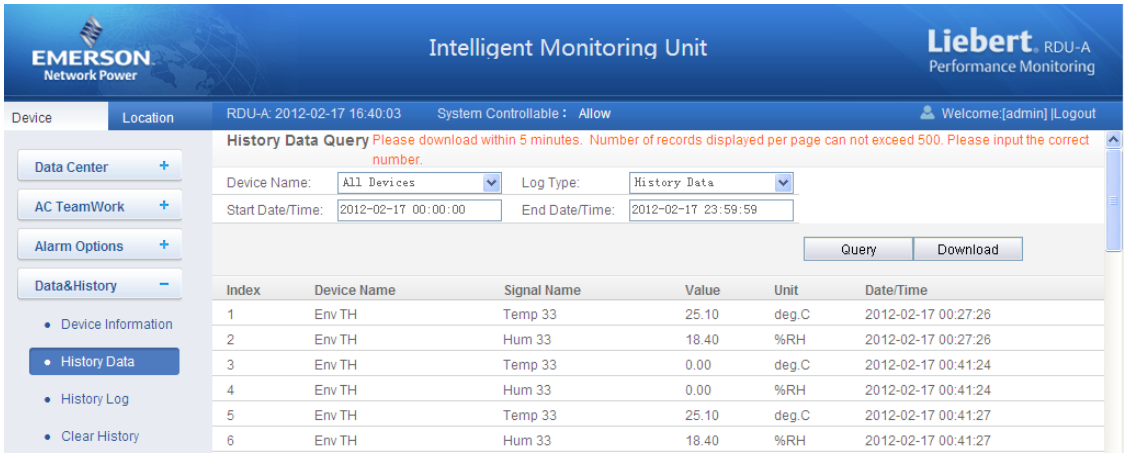

EMERSON Network Power
Intelligent Monitoring Unit
Liebert RDU-A Performance Monitoring
Device
Location
RDU-A: 2012-02-17 16:40:03
System Controllable : Allow
Welcome:[admin] |Logout
Data Center
AC TeamWork
Alarm Options
Data&History
Device Information
History Data
History Log
Clear History
History Data Query Please download within 5 minutes. Number of records displayed per page can not exceed 500. Please input the correct number.
Device Name: All Devices
Log Type: History Data
Start Date/Time: 2012-02-17 00:00:00
End Date/Time: 2012-02-17 23:59:59
Query
Download
Index
Device Name
Signal Name
Value
Unit
Date/Time
1 Env TH Temp 33 25.10 deg.C 2012-02-17 00:27:26
2 Env TH Hum 33 18.40 %RH 2012-02-17 00:27:26
3 Env TH Temp 33 0.00 deg.C 2012-02-17 00:41:24
4 Env TH Hum 33 0.00 %RH 2012-02-17 00:41:24
5 Env TH Temp 33 25.10 deg.C 2012-02-17 00:41:27
6 Env TH Hum 33 18.40 %RH 2012-02-17 00:41:27

Figure 4-36 History data

Choose a device（for instance, 'All Devices'）and the log type (for instance, 'History Data'), and set the start time and the end time (for instance, from 2012-02-17 00:00:00 to 2012-02-17 23:59:59). Then click the **Query** button, all the history data during the time will be listed, click the **Download** button to download the query result.

History Log

Click the **History Log** submenu under the **Data & History** menu, the page shown in Figure 4-37 pops up.

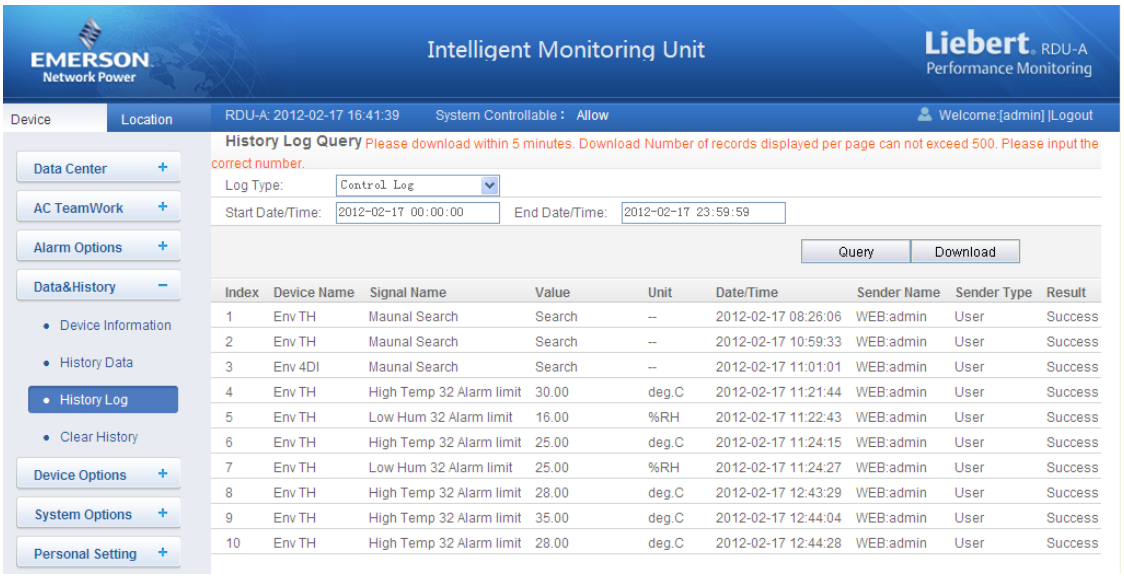

EMERSON Network Power
Intelligent Monitoring Unit
Liebert RDU-A Performance Monitoring
Device
Location
RDU-A: 2012-02-17 16:41:39
System Controllable : Allow
Welcome:[admin] |Logout
Data Center
AC TeamWork
Alarm Options
Data&History
Device Information
History Data
History Log
Clear History
Device Options
System Options
Personal Setting
History Log Query
Please download within 5 minutes. Download Number of records displayed per page can not exceed 500. Please input the correct number.
Log Type: Control Log
Start Date/Time: 2012-02-17 00:00:00
End Date/Time: 2012-02-17 23:59:59
Query
Download
Index Device Name Signal Name Value Unit Date/Time Sender Name Sender Type Result
1 Env TH Maunal Search Search -- 2012-02-17 08:26:06 WEB:admin User Success
2 Env TH Maunal Search Search -- 2012-02-17 10:59:33 WEB:admin User Success
3 Env 4DI Maunal Search Search -- 2012-02-17 11:01:01 WEB:admin User Success
4 Env TH High Temp 32 Alarm limit 30.00 deg.C 2012-02-17 11:21:44 WEB:admin User Success
5 Env TH Low Hum 32 Alarm limit 16.00 %RH 2012-02-17 11:22:43 WEB:admin User Success
6 Env TH High Temp 32 Alarm limit 25.00 deg.C 2012-02-17 11:24:15 WEB:admin User Success
7 Env TH Low Hum 32 Alarm limit 25.00 %RH 2012-02-17 11:24:27 WEB:admin User Success
8 Env TH High Temp 32 Alarm limit 28.00 deg.C 2012-02-17 12:43:29 WEB:admin User Success
9 Env TH High Temp 32 Alarm limit 35.00 deg.C 2012-02-17 12:44:04 WEB:admin User Success
10 Env TH High Temp 32 Alarm limit 28.00 deg.C 2012-02-17 12:44:28 WEB:admin User Success

Figure 4-37 History log

On the page shown in Figure 4-37, choose the log type (for instance, 'Control Log') and set the start time and the end time (for instance, from 2012-02-17 00:00:00 to 2012-02-17 23:59:59). Then click the **Query** button, all the control data during the time will be listed, click the **Download** button to download the query result.

Clear History

Click the **Clear History** submenu under the **Data & History** menu, the page shown in Figure 4-38 pops up.

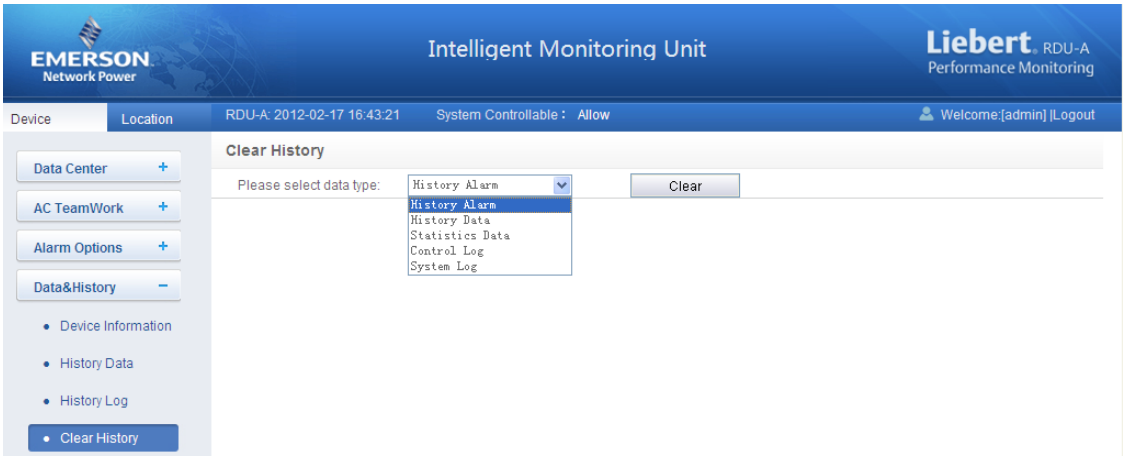


Figure 4-38 Clear history

As shown in Figure 4-38, you can choose 'History Alarm' and click the **Clear** button to clear all the history alarm. In the same way, you can clear any other getable data in the drop-down box.

4.6.5 Device Options

On the RDU-A homepage, click **Device Options** in the left part, three submenus will appear, including **Device Management**, **Signal Setting** and **Batch Configuration**.

Device Management

1. Add/Modify/Delete Device

Click the **Device Management** submenu under the **Device Options** menu, the page shown in Figure 4-39 pops up.

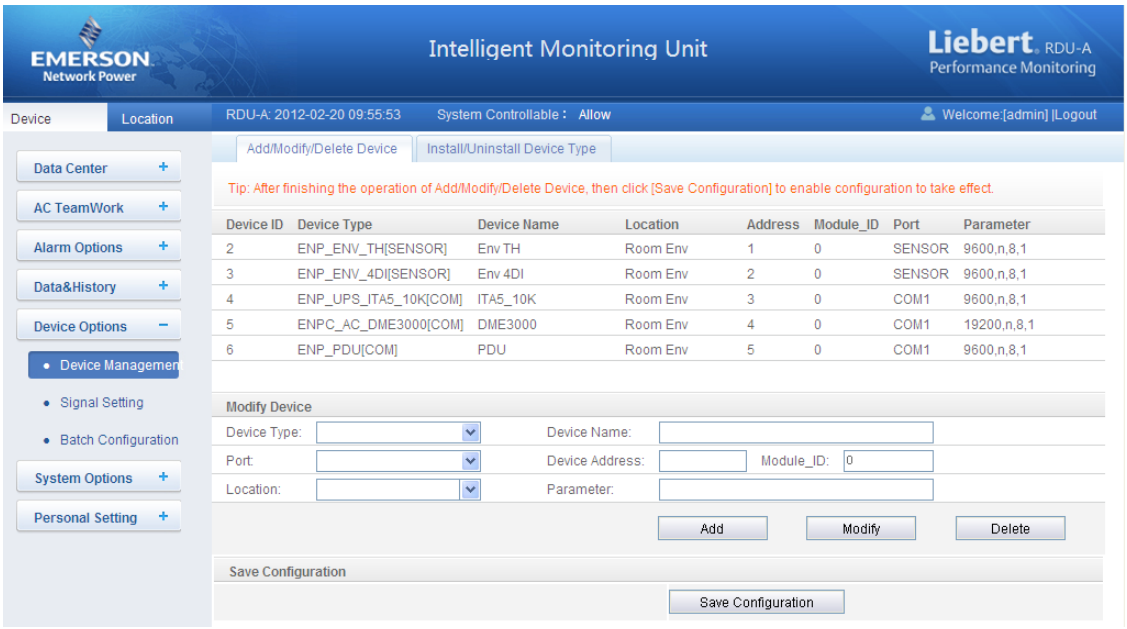


Figure 4-39 Add/modify/delete equipment

As shown in Figure 4-39, you can add a new device, the procedures are as follows:

1) Choose the device type in the **Device Type** textbox;

2) Type the device name in the **Device Name** textbox;

3) After the device type is chosen, the drop-down box of **Port** will list the default port number(s) of the device type automatically; if the device type is not chosen, the port number cannot be chosen;

4) Type the device address, which must be numbers from 1 to xx, in the **Device Address** textbox. The device addresses under the same port number must be different; for some device types, you need not type the device address, at this point, the **Device Address** textbox turn gray and cannot be edited. When one kind of device has many models, you need to type the model ID, which must be numbers from 1 to xx. The model IDs under one kind of device must be different;

5) Choose or type the device location;

6) Type the communication parameter in the **Parameter** textbox. In the event that the device type is certain, the communication parameter prompt information will appear in the **Parameter** textbox, including the communication parameter format and default communication parameter of the equip type;

7) Click the **Add** button, the page shown in Figure 4-40 pops up;

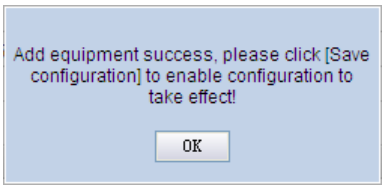


Figure 4-40 Prompt information 1

8) Click the **Save Configuration** button shown in Figure 4-39, the page shown in Figure 4-41 pops up;

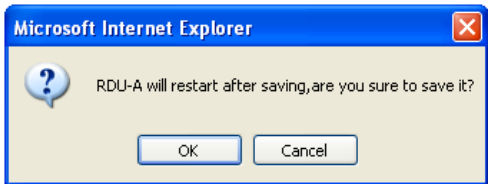


Figure 4-41 Prompt information 2

If clicking the **Cancel** button, the added equipment fails; if clicking **OK**, the dialog box of Security authentication pops up, as shown in Figure 4-42.

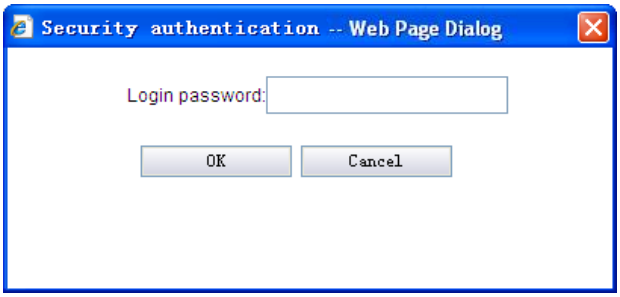


Figure 4-42 Dialog box of Security authentication

9) Type the login password of current user, and click **OK**. The reboot page pops up, as shown in Figure 4-43;

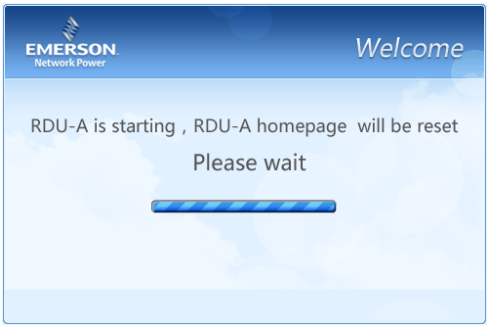


Figure 4-43 Reboot page

After the system reboots, adding a device becomes effective.

10) Log in the RDU-A webpage again and the added device will appear, as shown in Figure 4-44.

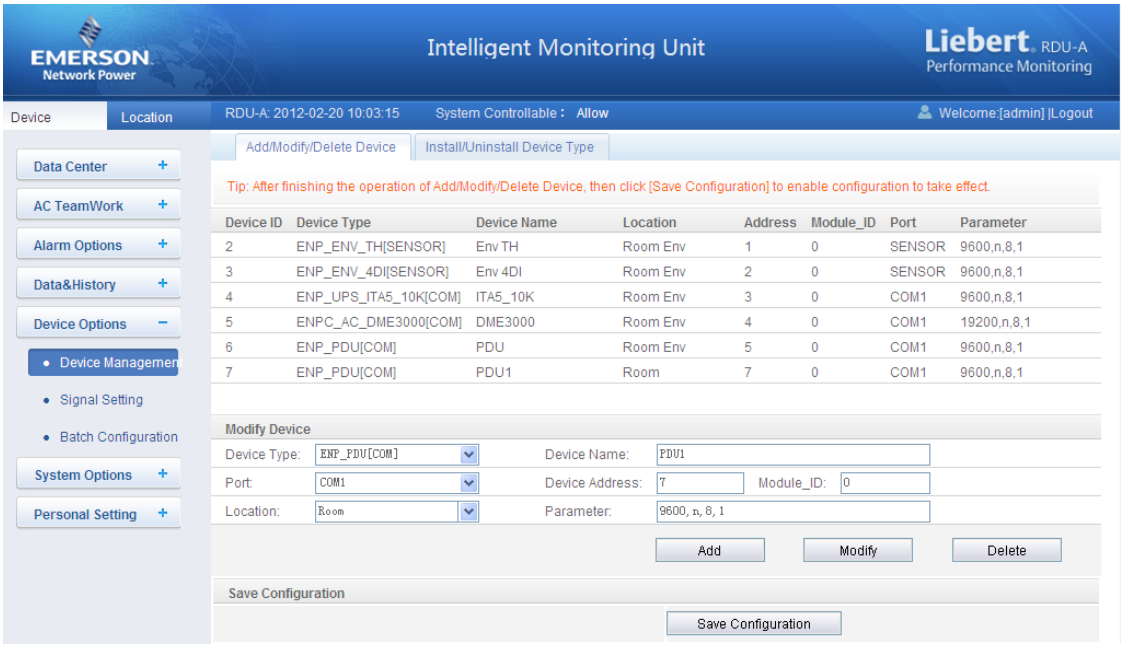


Figure 4-44 Adding a device becomes effective

Note

Up to 32 devices can be added in the system.

The procedures for deleting a device are as follows:

1. Choose the device which needs to be deleted in the device list;

2. Click the **Delete** button to delete the device;

3. Click the **Save Configuration** button to make the settings become effective, and the detailed procedures are the same as those of adding a new device.

Note

Before clicking the **Delete** button, if the device information has been modified, it cannot be deleted.

The procedures for modifying a device are as follows:

1. Choose the device which needs to be modified in the device list;
2. Modify the device information;
3. Click the **Modify** button to make the setting effective;
4. Click the **Save Configuration** button to make the settings become effective, and the detailed procedures are the same as those of adding a new device.

Note

Clicking the **Save Configuration** button can save all the operations at one time.

After adding, modifying or deleting procedures, if you leave the **Add/Modify/Delete Device** page without clicking the **Save Configuration** button to make the settings effective, the prompt information will pop up to remind you, as shown in Figure 4-45.

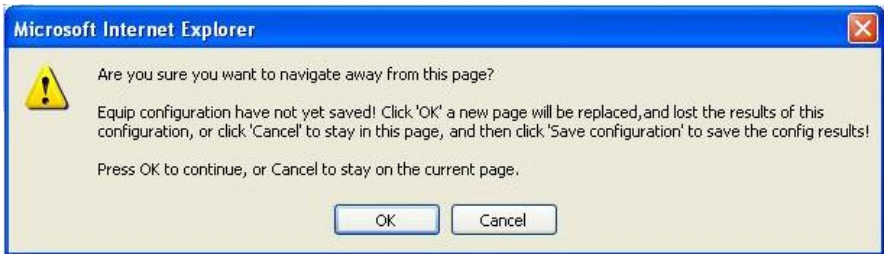

Microsoft Internet Explorer
Are you sure you want to navigate away from this page?
Equip configuration have not yet saved! Click 'OK' a new page will be replaced,and lost the results of this configuration, or click 'Cancel' to stay in this page, and then click 'Save configuration' to save the config results!
Press OK to continue, or Cancel to stay on the current page.
OK
Cancel

Figure 4-45 Prompt information 3

2. Install/Uninstall Device Type

Click the **Device Management** submenu under the **Device Options** menu, and then click the **Install/Uninstall Device Type** button, the page shown in Figure 4-46 pops up.

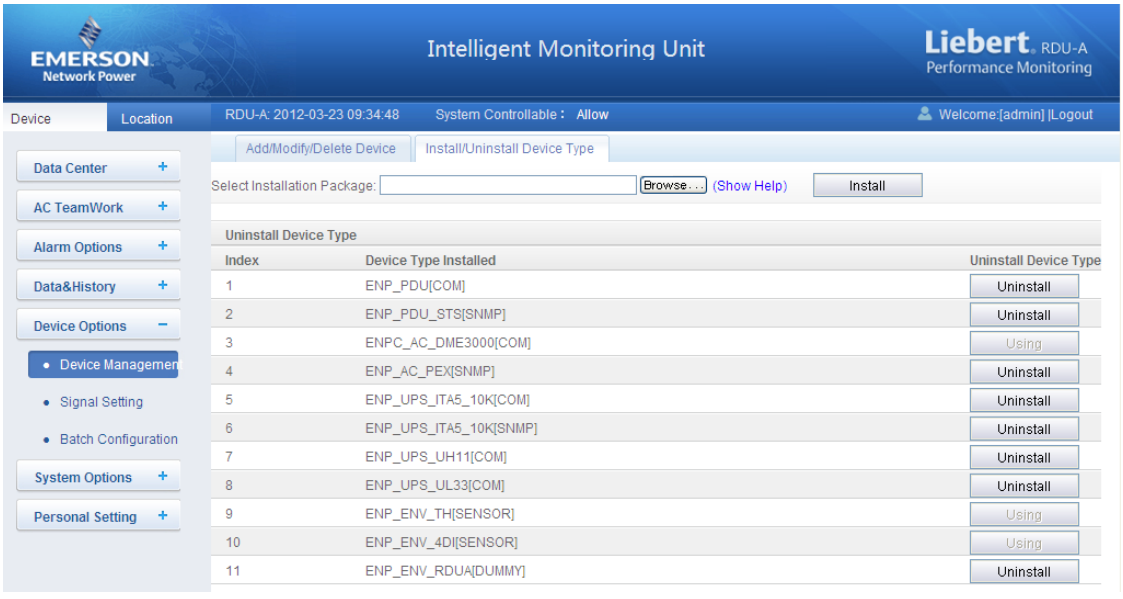


Figure 4-46 Install/Uninstall Device Type

Click the **Browse…** button to download configure package (file format of .iru) from local content, and click the **Install** button to install the new device type.

Note

The system supports up to 64 device types.

The page displays the installed device type information in the lower right part. Click the **Uninstall** button, the confirming dialog box pops up, as shown in Figure 4-47.

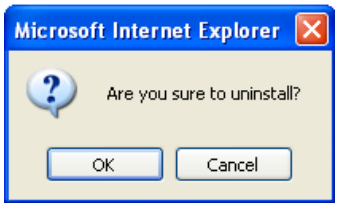


Figure 4-47 Confirming dialog box

Click **OK**, the dialog box of Security authentication pops up, as shown in Figure 4-42, type the login password of current user, and click **OK** to uninstall the corresponding equipment type.

Note

1. While installing device type, if the device type exists and the device driver has a higher version than the driver to be added, it cannot be installed repeatedly; if the installation pack has no version information, or the version information does not match the software version, the device type cannot be installed.

2. While uninstalling device type, if some device uses the device type, the **Uninstall** button becomes gray, displaying **Using**, and the device type cannot be uninstalled.

Signal Setting

Click the **Signal Setting** submenu under the **Device Options** menu, the page shown in Figure 4-48 pops up.

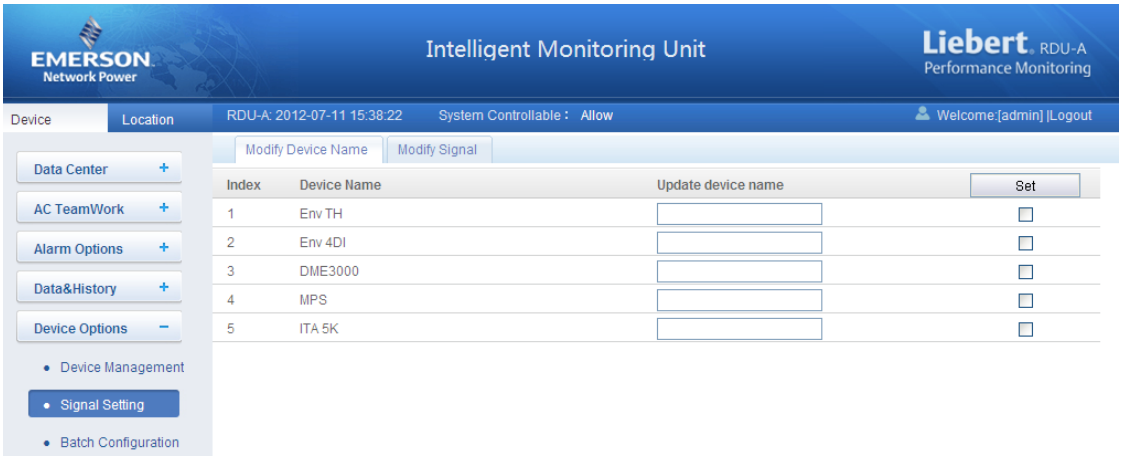


Figure 4-48 Modify device name

On the page shown in Figure 4-48, you can modify the device name. Type the new device name and click the **Set** button to make the setting effective.

Note

The characters of device name and signal name can be Chinese characters, English letters, digits, space and underline, other characters are invalid.

Click **Modify Signal**, the page shown in Figure 4-49 pops up.

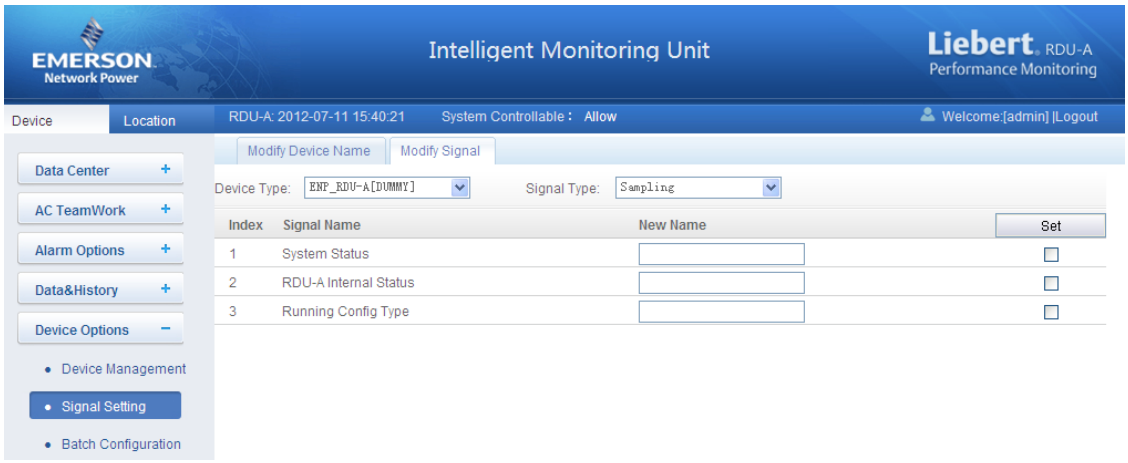


Figure 4-49 Modify signal

On the page shown in Figure 4-49, you can modify the signal name as well as the alarm level of the alarm signal. Choose **Device Type** and **Signal Type**, type the new signal name, and click the **Set** button to make it effective.

Note

For Env TH and Env 4DI, the system has the linkage modifying function for the signal name, that is, when the sample signal name is modified, the names of corresponding control signal, setting signal and alarm signal will be modified as well. Therefore, the page only supplies the function of modifying sample signal name.

Batch Configuration

Click the **Batch Configuration** submenu under the **Device Options** menu, the page shown in Figure 4-50 pops up.

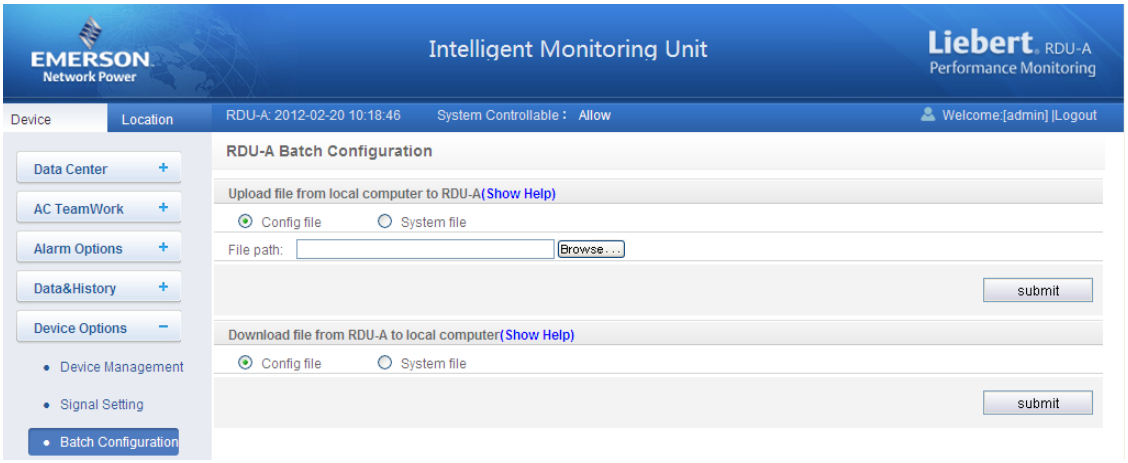


Figure 4-50 Batch configuration

When uploading file from local computer to RDU-A, choose the file type (for instance, 'Config file'), click the **Browse…** button to choose the file which needs to be uploaded, the file must be packed with the suffix of '*.iru', and click the **submit** button to pop up the confirming dialog box, as shown in Figure 4-51.

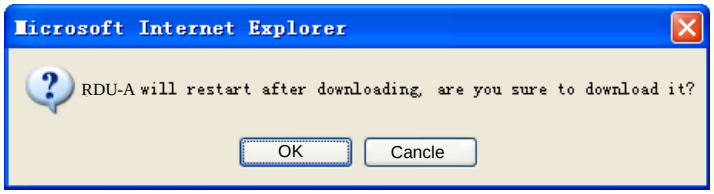


Figure 4-51 Confirming dialog box

Click **OK**, the dialog box of Security authentication pops up, as shown in Figure 4-42. Type the login password of current user, and click **OK** to upload the file to RDU-A.

Note

1. Only 'admin' can perform the upload operation, please perform the operation under the direction of professional personnel;

2. When the file type is 'System file', the uploaded file must be the format downloaded from the RDU-A to the local computer, otherwise the uploading fails.

When downloading file from RDU-A to local computer, choose the file type and click the **submit** button to save it in local computer, as shown in Figure 4-50.

Note

In the event of failure in uploading file from local computer to RDU-A or downloading file from RDU-A to local computer, please click **Show Help** to view the help information.

4.6.6 System Options

On the RDU-A homepage, click the **System Options** menu in the left part, seven submenus appear, including: **Monitoring Unit**, **Network Setting**, **User Management**, **Date/Time Setting**, **System Reset**, **Site Setting** and **System Upgrade**.

Monitoring Unit

Click the **Monitoring Unit** submenu under the **System Options** menu, the page shown in Figure 4-52 pops up.

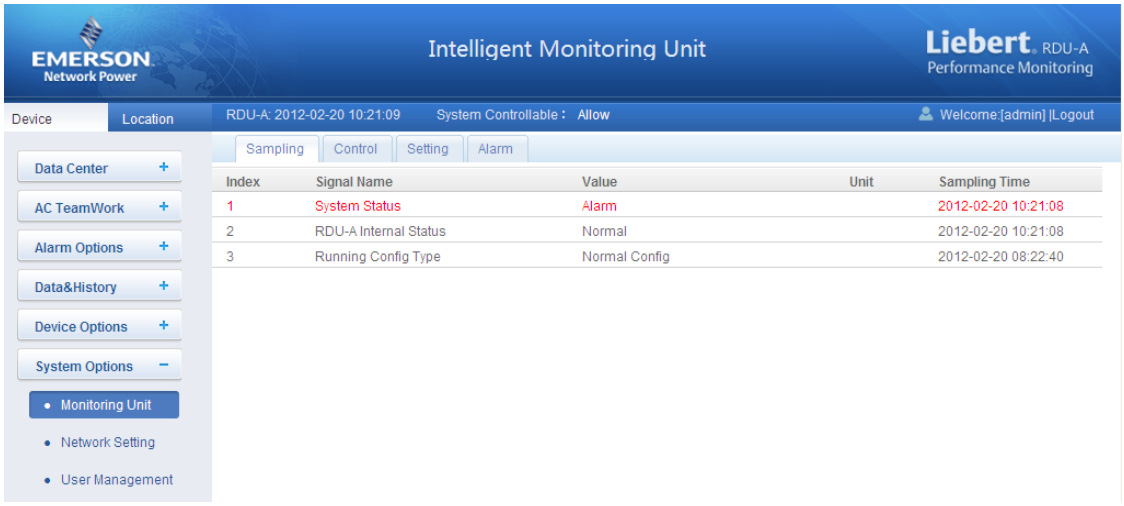


Figure 4-52 Monitoring unit (Sample)

As shown in Figure 4-52, the signals on the page are all sample signals of RDU-A system, such as **System Status**. Click the **Control** button, the page shown in Figure 4-53 pops up.

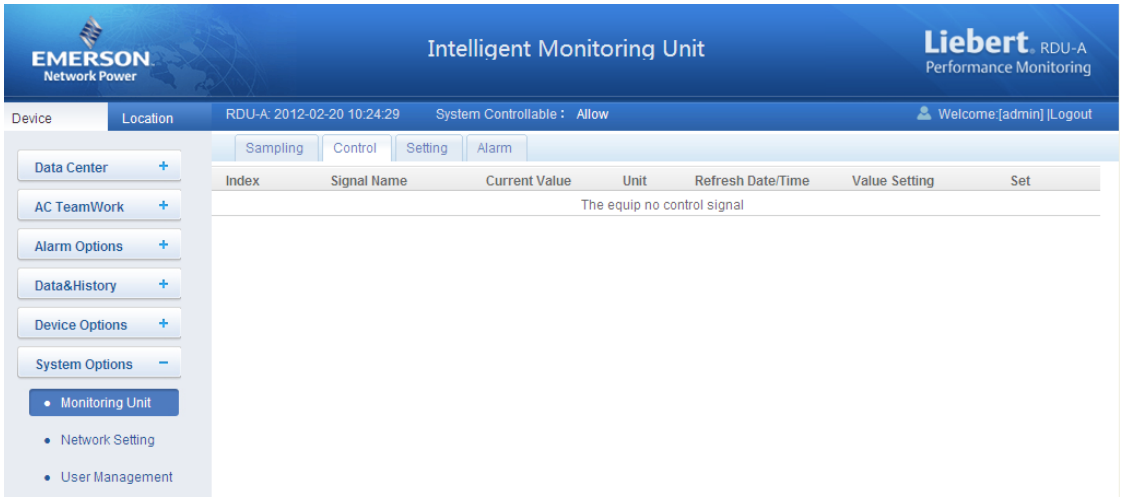


Figure 4-53 Monitoring unit (Control)

As shown in Figure 4-53, the monitoring unit has no control signals, that is, the RDU-A has no control signals.

Click the **Setting** button, the page shown in Figure 4-54 pops up.

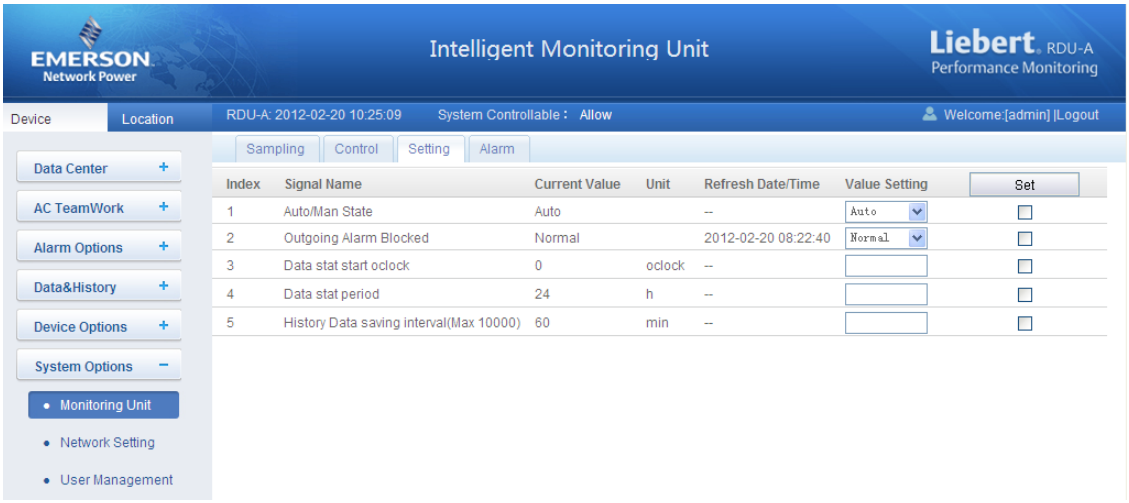


Figure 4-54 Monitoring unit (Setting)

As shown in Figure 4-54, the page lists the settable values of the RDU-A. For example, you can set the value in the **History Data saving interval** textbox, then tick the check box behind and click the **Set** button to make it effective.

Note

If setting **Blocked** for **Outgoing Alarm Blocked**, when an alarm occurs, it will be blocked, in this case:

1. The alarm signal will be displayed in the current alarm, but the alarm notification will not be sent. After the alarm disappears, it will not be saved in the history alarm;

2. The **Blocked** setting for **Outgoing Alarm Blocked** will be automatically cleared in 24 hours.

Click the **Alarm** button, the page shown in Figure 4-55 pops up.

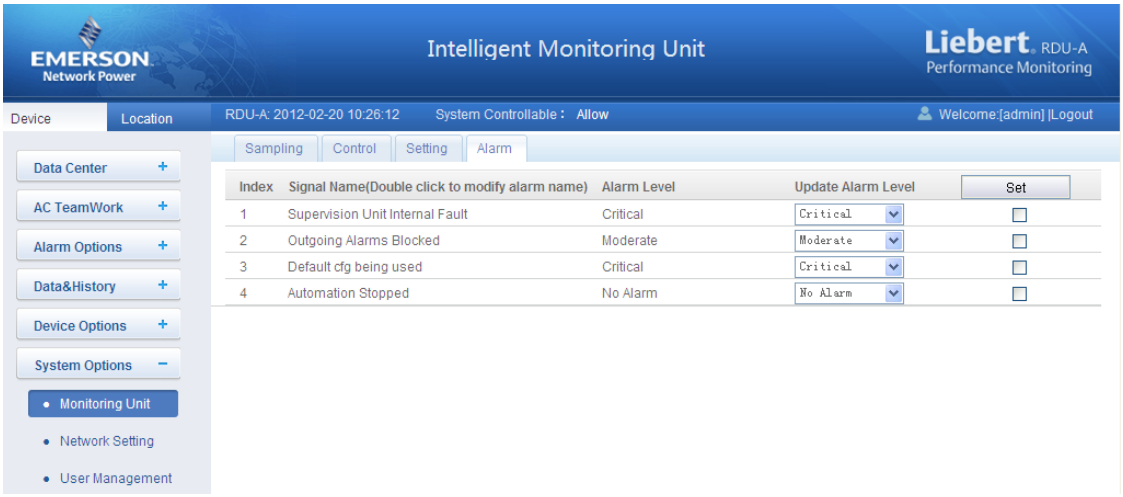


Figure 4-55 Monitoring unit (Alarm)

On the page shown in Figure 4-55, you can modify the alarm names through double-clicking, set the alarm level, tick the check box behind and then click the **Set** button to make the setting effective.

Network Setting

1. IP Setting

Click the **Network Setting** submenu under the **System Options** menu, the page shown in Figure 4-56 pops up.

Figure 4-56 IP setting

On the page shown in Figure 4-56, you can configure the network parameters of RDU-A, such as **IP Address**, **Subnet Mask**, **Default Gateway**, **Preferred DNS server** and **Alternate DNS server**. After modifying the network parameters, click the **Save** button to make the setting effective.

Note

After modifying the IP address, you must use the new IP address to re-login the RDU-A.

2. Access Management

Click the **Network Setting** submenu under the **System Options** menu, and then click the **Access Management** button, the page shown in Figure 4-57 pops up.

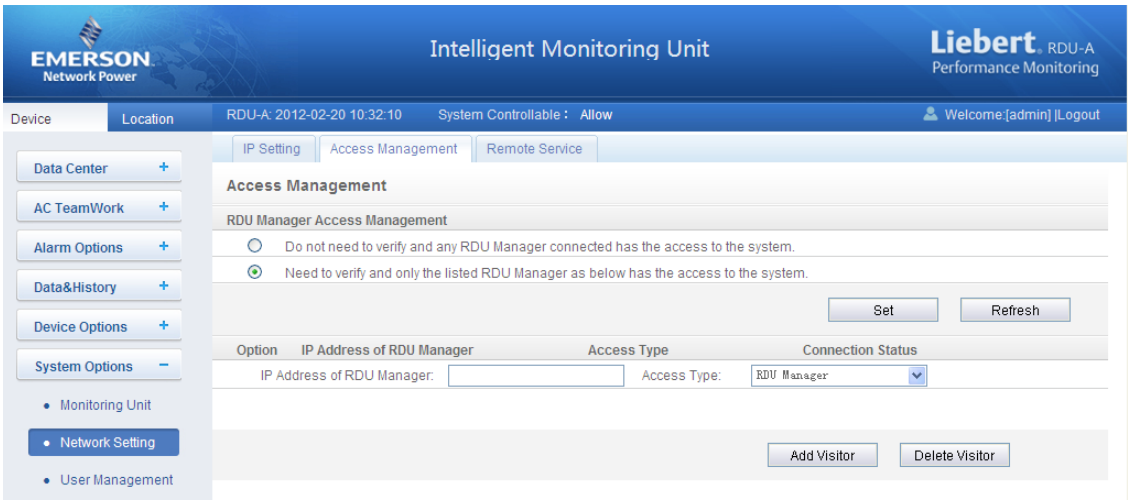


Figure 4-57 Access management

In the event of adding visitor, in the textbox of **IP Address of RDU Manager**, type the new IP address of the RDU manager, and click the **Add Visitor** button to finish the configuration.

Note

Up to five RDU-M IP addresses can be added in the system.

3. Remote Service

The remote service is mainly used to complete the data exchange between the intelligent monitoring unit (RDU-A) and the RDU machine room manager (RDU-M), and realize the functions of fault diagnosis, fault statistic and generating data report of the remote RDU-A by the RDU-M.

Click the **Network Setting** submenu under the **System Options** menu, and then click the **Remote Service** button, the page shown in Figure 4-58 pops up.

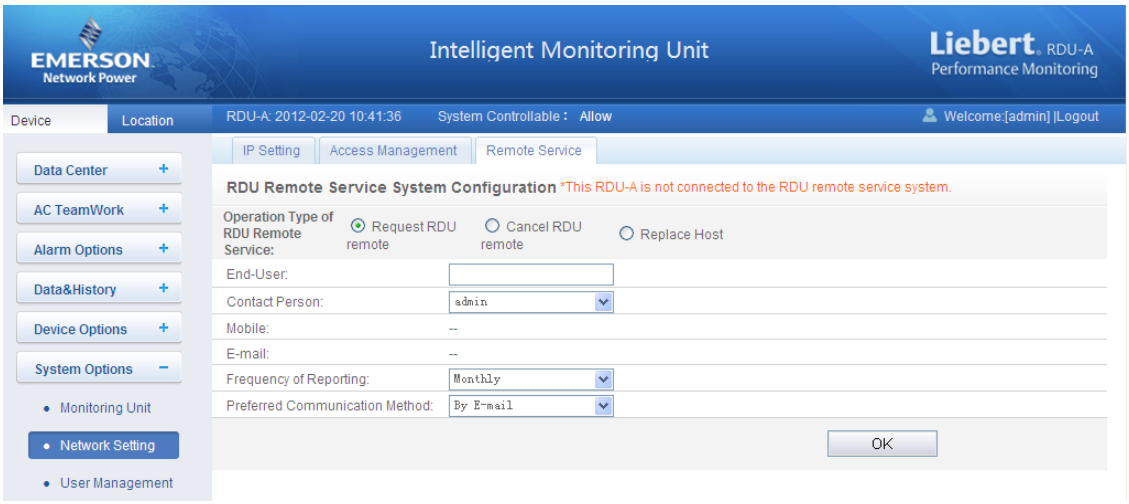


Figure 4-58 Remote service setting

The remote service setting includes three parts: **Request RDU remote**, **Cancel RDU remote** and **Replace Host**.

- Request RDU remote: used to establish remote service relationship

1) Type the self-defined customer name in the **End-User** textbox;

2) Choose the contactor for remote service in the **Contact Person** textbox, when the contactor is chosen, the corresponding mobile and email will be displayed;

Note

The contactor for remote service must be set through System Options -> User Management in advance, and you must provide the mobile or email, or the service request cannot be conducted. Refer to *User Management* in this section for detailed setting method.

3) Choose **Frequency of Reporting**: 'Monthly', 'Seasonal';

4) Choose **Preferred Communication Method**: 'By E-mail', 'By GPRS';

5) Click **OK** to send the remote service request, if the sending is a success, the prompt shown in Figure 4-59 pops up.

Figure 4-59 Prompt of success

- Cancel RDU remote: used to cancel the established remote service

Choose **Cancel RDU remote** and click **OK** to send a command to cancel the current remote service.

Note

Canceling the remote service is effective only under the precondition that the remote service has been established, otherwise, a prompt of failure will pop up after you click **OK**.

- Replace Host: used to replace the local host during remote service

When the host that has established remote service need to quit, but you want to remain the established remote service relationship, you need to replace the local host to participate in the remote service. The detailed setting method is the save as **Request RDU remote**, besides, type the hardware serial number of the replaced host.

User Management

Click the **User Management** submenu under the **System Options** menu, the page shown in Figure 4-60 pops up.

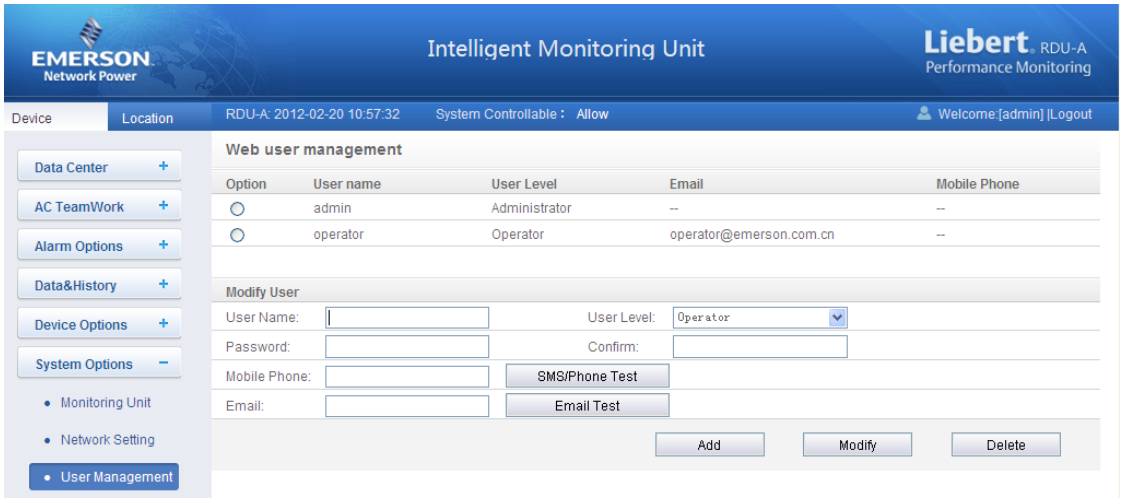


Figure 4-60 User management

On the page shown in Figure 4-60, you can add user, modify user and delete user.

●Add user

1. Type username in the **User Name** textbox;

Note

The characters of username can only be English letters, digits, -, and _. In addition, the initial characters must be letters or digits.

2. Choose the user authority;

3. Configure the user password, which cannot be vacant and should contain at least six letters or digits.

4. Re-type the password in the **Confirm** textbox;

5. (Optional) Type the user telephone number, which can use the following digits and characters: 0123456789, +;

6. (Optional) Type the email address;

7. Click the **Add** button, the dialog box of Security authentication pops up, as shown in Figure 4-42. Type the login password of current user, and click **OK** to add the new user.

●Delete user

1. Choose the user which needs to be deleted in the username list;

2. Click the **Delete** button to pop up the confirming dialog box, as shown in Figure 4-61.

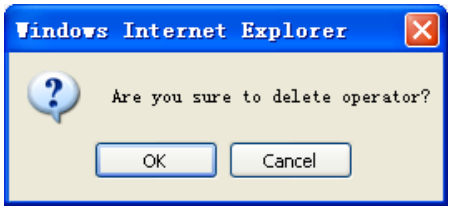


Figure 4-61 Confirming dialog box

3. Click **OK**, the dialog box of Security authentication pops up, as shown in Figure 4-42. Type the login password of current user, and click **OK** to delete the chosen user.

●Modify user

1. Choose the user which needs to be modified in the username list;

2. Modify the user information;

3. Click the **Modify** button, the dialog box of Security authentication pops up, as shown in Figure 4-42. Type the login password of current user, and click **OK** to make the modified user information effective.

Users who access RDU-A can be divided into four user groups, and they have different security level and user authority, see Table 4-3 for detailed information.

Table 4-3 User security level

Security level	User group	User authority
Level A	Browser	All users can browse equipment information
Level B	Operator	The operators can send control command to intelligent equipment
Level C	Engineer	The engineers can get the following access: Send control command to intelligent equipment; Browsing, controlling and modifying parameters; Download files; Modifying user information of their own
Level D	Administrator	The administrator can get full access: Send control command to intelligent equipment; Browsing, controlling and modifying parameters; Upload and download files; Modifying, adding and deleting user information; AC teamwork parameter setting; System upgrade

On the page shown in Figure 4-60, choose the current user, you can perform **SMS/Phone Test** and **Email Test**.

Before using the test function, users need to configure the SMS/Email server of current user, refer to *Alarm Notification* in *4.6.3 Alarm Options* for details.

- SMS/Phone Test

Type the phone number in the **Phone** field, and click the **SMS/Phone Test** button to test that the telephone number of current user can be gotten through. If users receive the test SMS and telephone, the test is successful; if not, the test fails, please check that the telephone number is correct and the SMS Modem is properly connected.

- Email Alarm Notify Test

Type the email address in the **Email** field, and click the **Email Test** button to test that the email address of current user is correct. If users receive the test email, the test is successful; if not, the test fails, please check that the information above is correctly typed.

Note

When adding, modifying user, you must type the phone number or the email address, or the setting cannot be completed.

Date/Time Setting

Clicking the **Date/Time Setting** submenu under the **System Options** menu can synchronize the time. On the page shown in Figure 4-62, RDU-A can get time from the time servers automatically. Type IP address in the **Primary server** textbox and **Secondary server** textbox in sequence, type a figure in **Interval to calibrate system time** textbox, select the **Time zone** and **Calibrating Protocol**, and then click the **Set** button to make the setting effective.

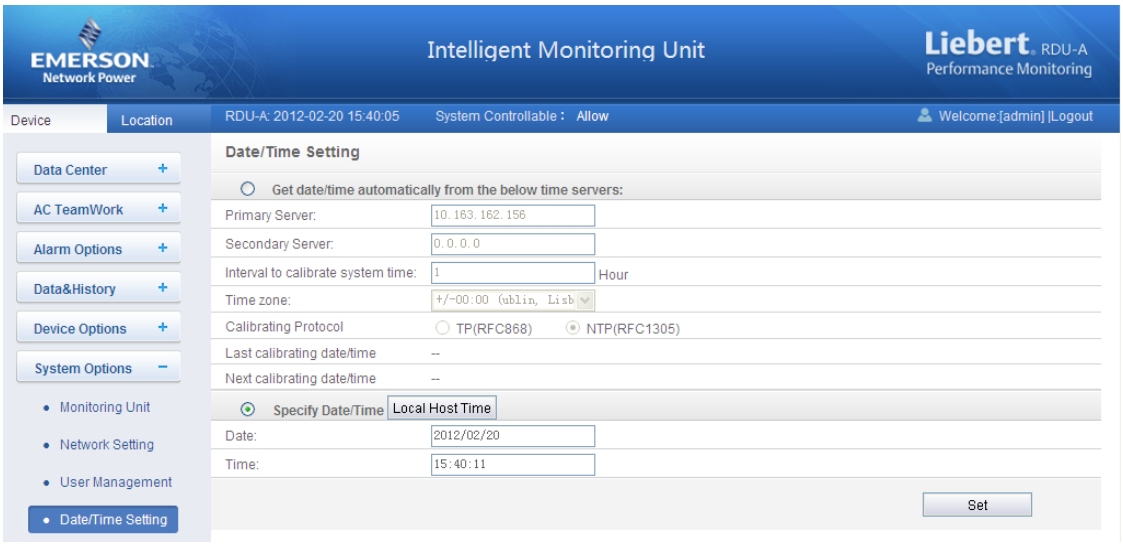


Figure 4-62 Date/time setting

The RDU-A can also get the local time. As shown in Figure 4-62, choose **Specify Date/Time**, click the **Local Host Time** button to get the local time, and then click the **Set** button to make the new time effective.

Note

Time calibration adopts **Specify Date/Time** by default.

System Reset

Click the **System Reset** submenu under the **System Options** menu, the page shown in Figure 4-63 pops up.

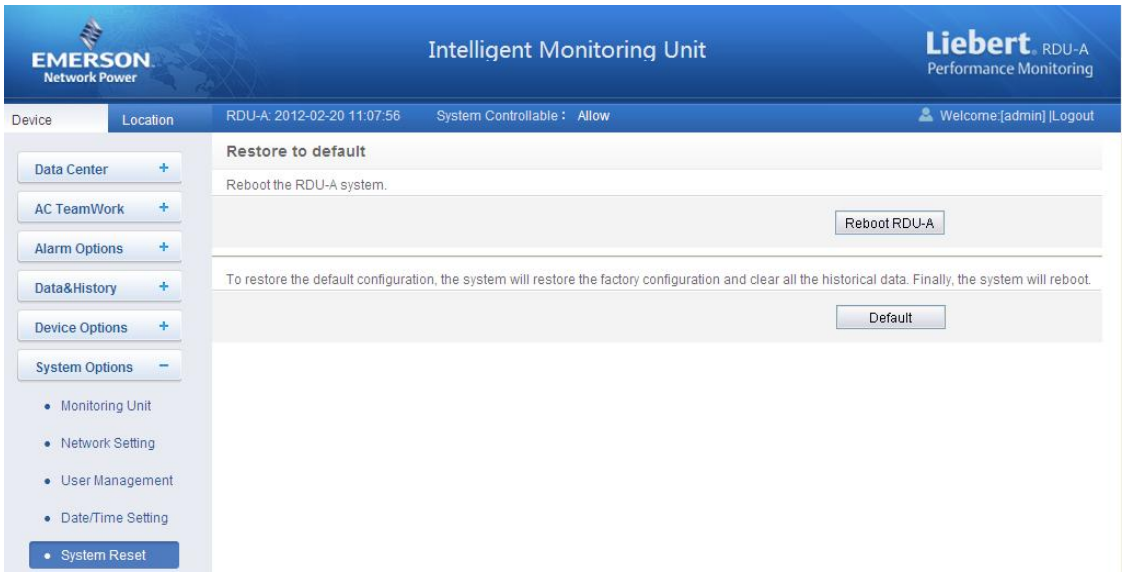


Figure 4-63 System reset

Click the **Reboot RDU-A** button to reboot the system.

Click the **Default** button to restore all the default settings.

Note

If you use the restore function, RDU-A may lose the original configuration solution. After the restore operation, make sure to wait for one minute before re-accessing RDU-A through Web.

Site Setting

Click the **Site Setting** submenu under the **System Options** menu, the page shown in Figure 4-64 pops up.

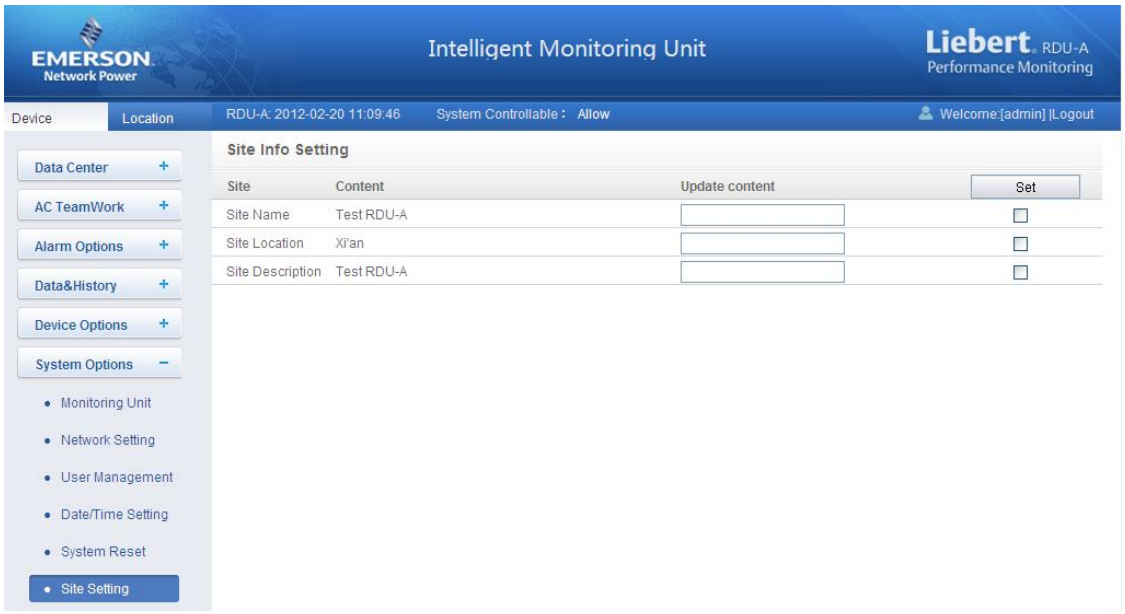


Figure 4-64 Site information setting

On the page shown in Figure 4-64, you can modify the site information of RDU-A, including **Site Name**, **Site Location** and **Site Description**.

System Upgrade

Click the **System Upgrade** submenu under the **System Options** menu, the page shown in Figure 4-65 pops up.

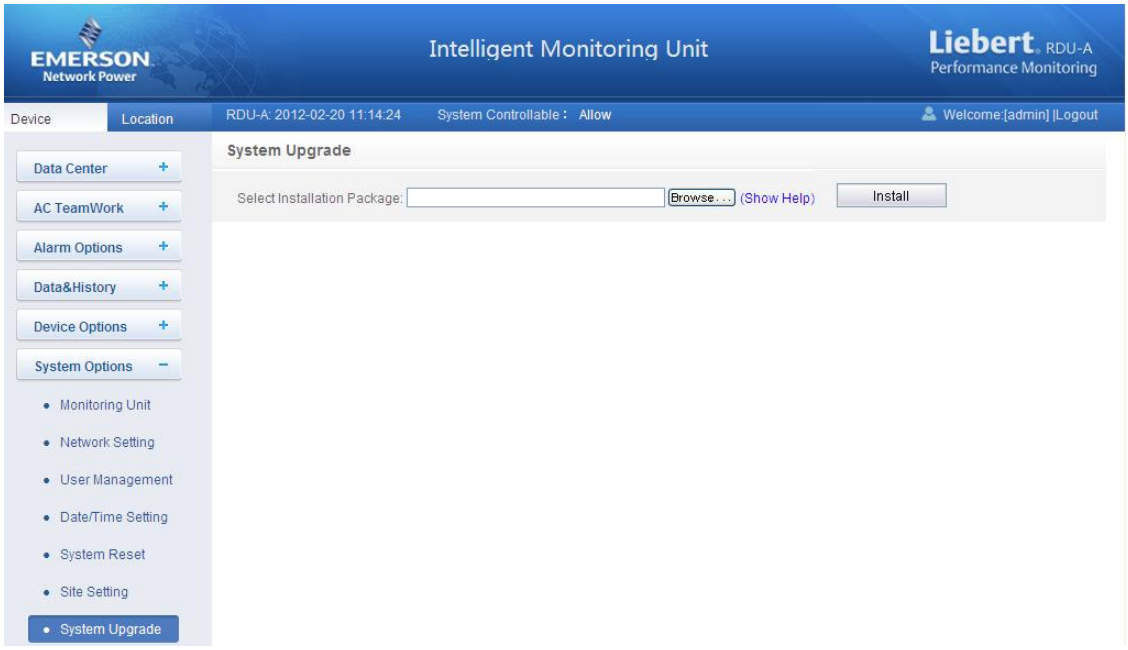


Figure 4-65 Site information setting

On the page shown in Figure 4-65, click the **Browse…** button to download configure pack (.rdua file format) from the local catalogue, and then click the **Install** button to upgrade the system.

4.6.7 Personal Setting

On the RDU-A homepage, click the **Personal Setting** menu in the left part, two submenus appear, including: **System Title** and **Status Bar**.

System Title

Click the **System Title** submenu under the **Personal Setting** menu, the page shown in Figure 4-66 pops up.

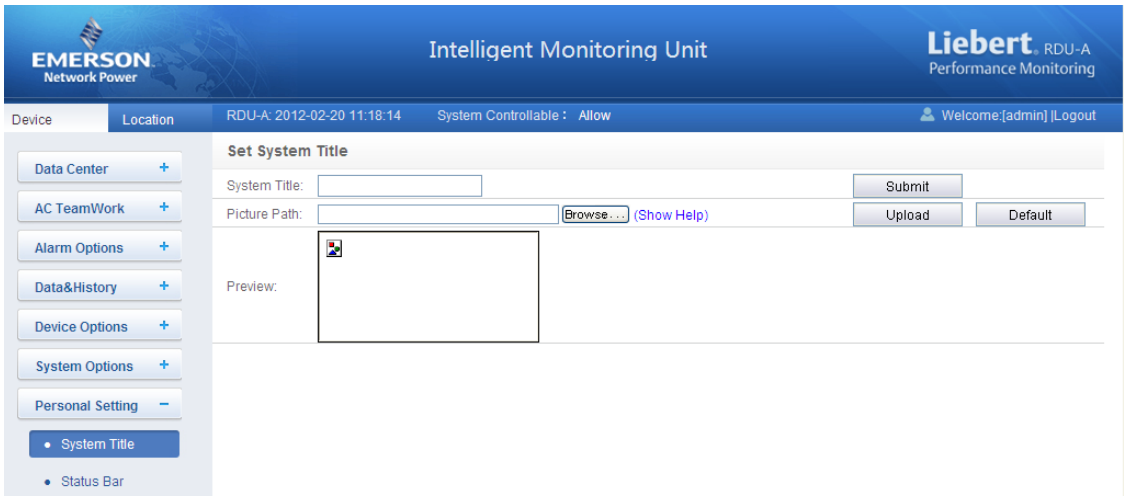


Figure 4-66 Title setting

As shown in Figure 4-66, you can replace the Logo picture in the upper right part by uploading system Logo picture. Click the **Browse…** button, choose the needed Logo picture and click the **Upload** button to upload the file to RDU-A. Only [.gif], [.bmp] and [.jpg] format pictures are allowed, and the picture size should be less than 25K. Clicking the **Default** button can restore the default Logo picture.

You can also change the system title **Intelligent Monitoring Unit** at the top of the page. Type the customized title in the **System Title** textbox and click the **Submit** button to make it effective.

Status Bar

Status bar configuration function is used to configure the display content of status bar in the lower part of the page.

Click the **Status Bar** submenu under the **Personal Setting** menu, the page shown in Figure 4-67 pops up.

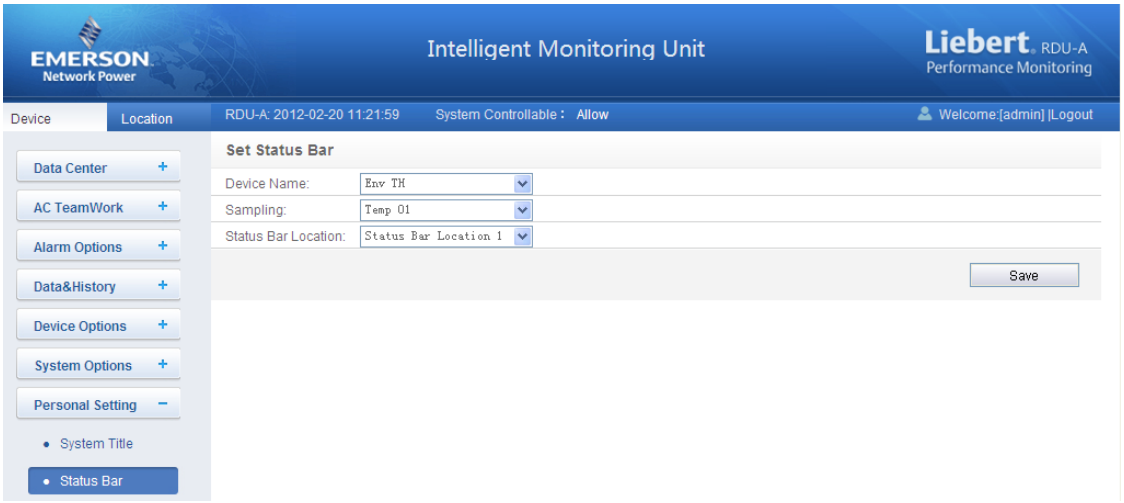


Figure 4-67 Configuring status bar 1

As shown in Figure 4-67, select **Device Name**, **Sampling** and **Status Bar Location** in sequence. For example, **Device Name:** 'Env TH', **Sampling**: 'Temp 01', **Status Bar Location:** 'Status Bar Location 1', click the **Save** button to finish the setting, the location 1 of status bar will display information of **Env TH Temp 01**, as shown in Figure 4-68.

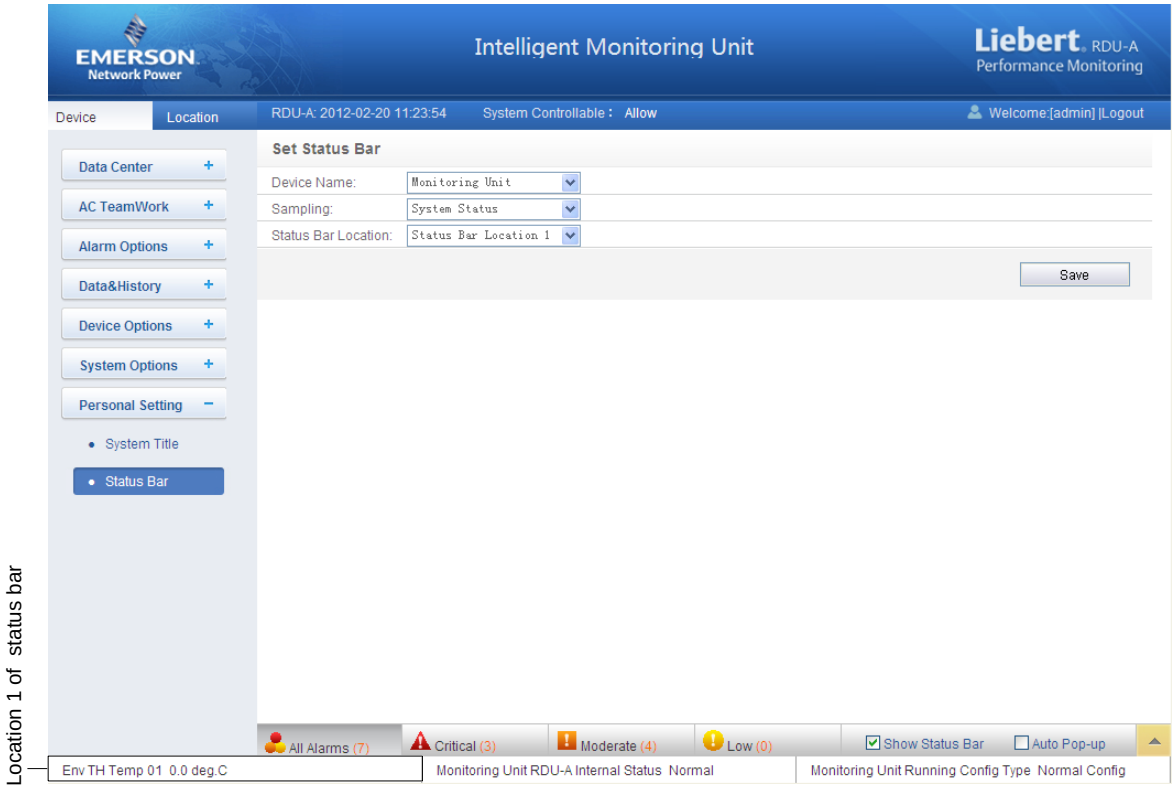


Figure 4-68 Configuring status bar 2

Note

The status bar is hidden by default. You can tick **Show Status Bar** in the lower right corner of the page to view it.

4.7 Shortcut Method

The RDU-A page provides five shortcut methods, including modifying signal name, [User] logout, controllable status, time calibration link and view by location.

4.7.1 Modifying Signal Name

When exploring the information of every specific device, for instance, Env 4DI, double-click the equipment signal name, the signal name will become editable, as shown in Figure 4-69.

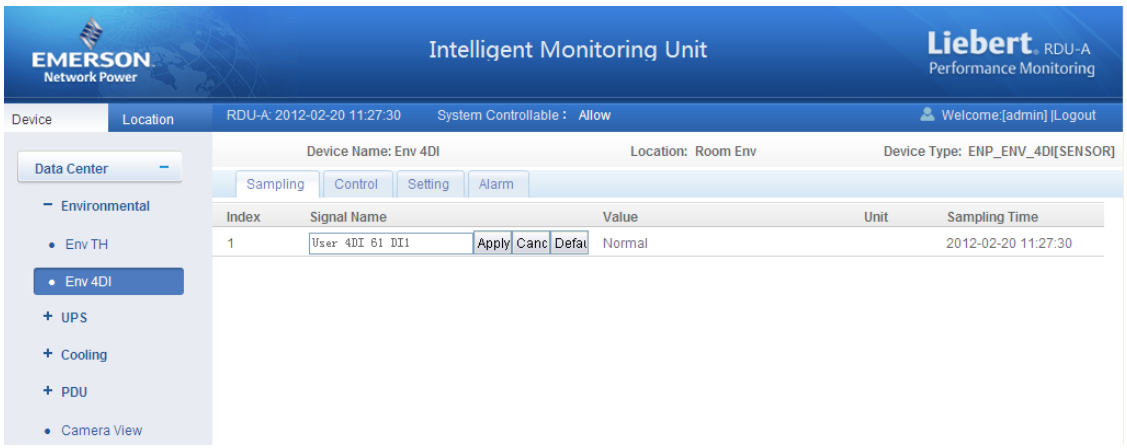


Figure 4-69 Double-clicking to modify the signal name

Click the **Default** button to restore the system default equipment signal name. Click the **Cancel** button to cancel the operation. Type a new signal name in the textbox, and click the **Apply** button to finish the modification.

Note

For Env TH and Env 4DI, the system has the linkage modifying function for the signal name, that is, when the sample signal name is modified, the names of corresponding control signal, setting signal and alarm signal will be modified as well. Therefore, only sample signal name can be modified by double-clicking.

4.7.2 [User] Logout

Click the **[User] Logout** button in the upper right part of the page, a confirming dialog box pops up, as shown in Figure 4-70.

Figure 4-70 Confirming dialog box of logout

Click **OK** to return the login page.

4.7.3 Controllable Status

The upper middle part of the page displays the **System Controllable** status. If the **System Controllable** status is **Allow**, the current user can operate the Web page; if there is no control operation in five minutes, the **System Controllable** status becomes **[Clear] Time-out**, the current user can only explore the Web page. If users want to operate it, click the **[Clear] Time-out** link, and the dialog box of clear time out pops up, as shown in Figure 4-71.

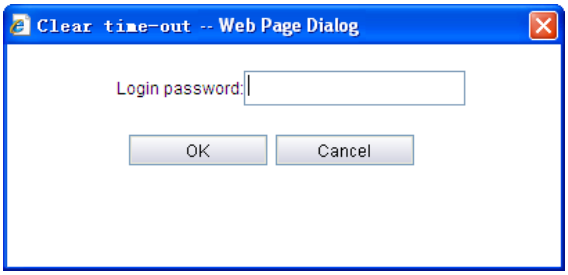


Figure 4-71 Dialog box of clearing time-out

Type the login password of current user, and click **OK** to clear time out.

Note

You need to wait about five seconds after typing the login password, and then the **System Controllable** status will show **Allow**.

4.7.4 Time Calibration Link

Click the **RDU-A: Current time** link in the upper left part of the page, the time calibration page pops up, as shown in Figure 4-62.

4.7.5 View By Location

Click **Location** in the left part, you can view the room equipment information according to the specific equipment location, as shown in Figure 4-72.

Figure 4-72 Page of view by location

As shown in Figure 4-72, the location names of the equipment are displayed under the **Data Room** submenu, such as Rack1 and Rack2. Equipment in the same equipment location will be displayed under the same location name.

The setting method of equipment location is as follows:

1. Click Device Options -> Device Management, the page shown in Figure 4-39 pops up;
2. Define the **Location** field according to the actual situation, refer to *Device Management* in *4.6.5 Device Options.*

Note

The equipment locations of all intelligent sensors are the same, which are **Room Env** by default.

On the page of view by location, you can set the background picture and the icon location. Click the **Set Location** button, and the page shown in Figure 4-73 pops up.

Figure 4-73 Setting page

The setting method is as follows:

1. Click the **Set Background** button, the dialog box shown in Figure 4-74 pops up;

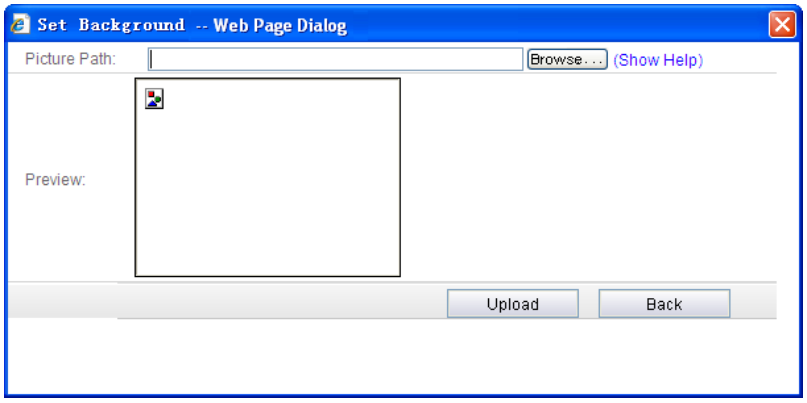


Figure 4-74 Dialog box of setting background picture

2. Click the **Browse…** button to choose the background picture, after it is chosen, the **Preview** area will display the preview effect;

3. Click the **Upload** button, after the picture is uploaded, the page will display the background picture, as shown in Figure 4-75;

Note

Only .gif, .ipg and .bmp format pictures are allowed to be uploaded, the picture size cannot exceed 250K, and the recommended picture size is 700 × 500.

4. Drag the equipment icon to change its location at will. As shown in Figure 4-75, the location of the equipment icon has been changed;

Figure 4-75 The setting is completed

5. Click the **Save Location** button to complete the setting.

Chapter 5 RDU-A Configuration

This chapter expounds how to configure the monitoring site information, including RDU-A configuration method and configuration demonstration.

5.1 RDU-A Configuration Method

When configuring the site information, users only need to configure the specific equipment monitored in the site, and the configuration procedures are as follows:

Step 1: Confirm the equipment type of each piece of equipment.

🕮 **Note**

The equipment type here is defined by the communication mode being used, that is, the communication mode differs and the equipment type differs.

After the equipment type is ensured, the specific communication port connected with the equipment is also ensured. The port types supported by RDU-A are given in Table 5-1.

Table 5-1 RDU-A port type

Port	SENSOR	COM1	COM2	COM3	COM5	COM6	COM7	COM8	SNMP
Port type	Standard port			RS-485 port					SNMP

Step 2: Configure the equipment address, which can be numbers from 1 to xx. And the address under the same port cannot be the same.

Step 3: Confirm the specific location of equipment, you can choose it from the drop-down menu or type it manually.

Step 4: Confirm the communication parameters of equipment.

🕮 **Note**

After choosing the port, the default communication parameters will appear, and you can modify it on their own.

1. The format of communication parameters for equipment connected through COM port is: baud rate, parity, bit, stop bit

2. The format of communication parameters for equipment connected through SNMP card is: IP address of the connected SNMP card: public: private

🕮 **Note**

Users need to set the NMS parameters and add IP address of the computer which is allowed to visit the SNMP proxy, when the equipment is connected through SNMP card. Refer to SNMP card user manual for details.

Step 5: After configuring the parameters above, log in the RDU-A through Web, click the **Device Management** submenu under the **Device Options** menu, and click the **Install/Uninstall Device Type** button on the **Device Management** page, as shown in Figure 5-1.

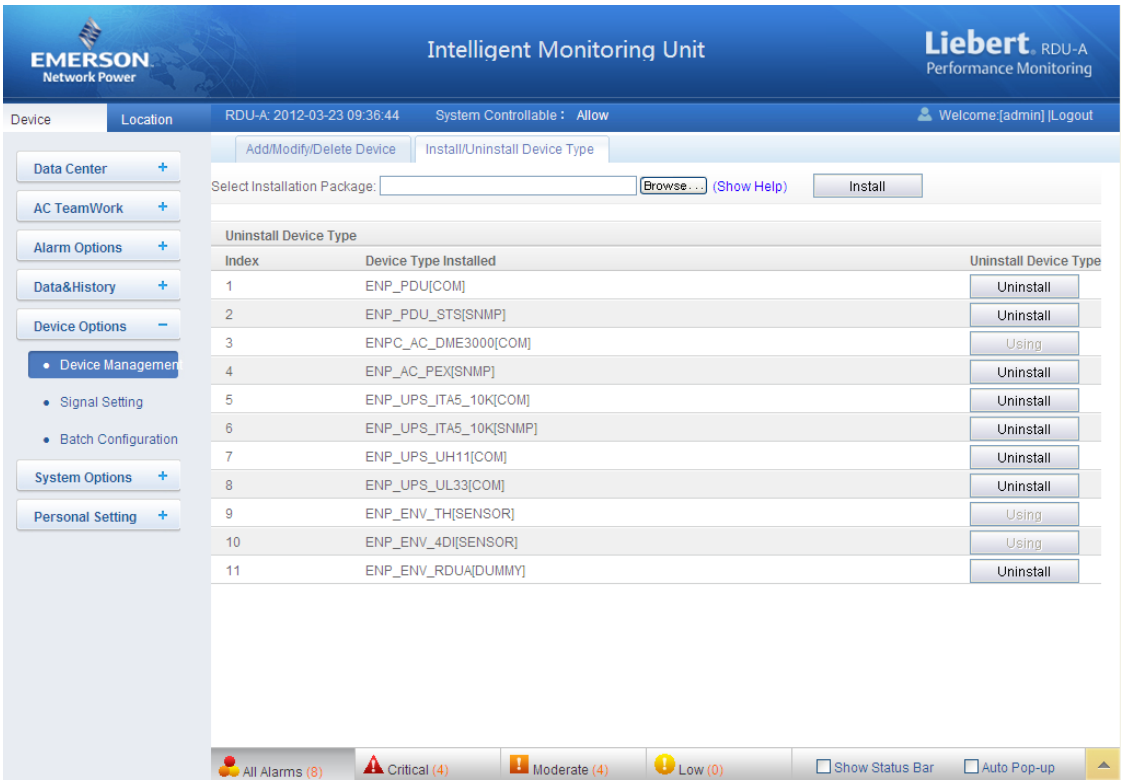


Figure 5-1 Install/Uninstall Device Type

On the page shown in Figure 5-1, find the device type of configured device in the list, if there is no corresponding device type, please ask the agent for configure package and install the device type, after the type is successfully installed, add new device through the **Add/Modify/Delete Device** page; if there is corresponding device type in the list, users only need to add new device through the **Add/Modify/Delete Device** page. Refer to *Device Management* in *4.6.5 Device Options* for detailed procedures of installing device type and adding new device.

5.2 RDU-A Configuration Demonstration

Taking the application site of small computer room as an example, this section introduces the RDU-A configuration procedures. The small computer room is shown in Figure 5-2.

Figure 5-2 Small computer room

See Table 5-2 for the equipment configuration and connecting mode.

Table 5-2 Equipment configuration and connecting mode

Equipment	Number	Connecting mode to RDU-A
Rack	4	-
RDU-A	1	-
12.5kW precision air conditioner (DataMate3000)	1	Connect to RDU-A through COM2 port
RDU-SIC card	3	Connect to UPS ADAPT through network mode
UPS 5KVA (ADAPT UPS)	3	Connect to RDU-A through RDU-SIC card
Backup battery module	3	-
PDU	8	Connect to RDU-A through COM3 port and COM5 port
IRM-S02TH intelligent temperature & humidity sensor[1]	8	Connect to RDU-A through SENSOR port, support serial connection of multiple sensors
IRM-S04DIF intelligent digital input sensor with RJ45 ports[2]	1	Connect to RDU-A through SENSOR port
Door status sensor (used to detect the door's open/close status)	4	Two sensors are connected to RDU-A directly, the other two are connected to RDU-A through IRM-S04DIF
Smoke sensor	1	Connect to RDU-A through SMOKE port
Water sensor	1	Connect to RDU-A through WATER port
Camera[3]	1	Connect to RDU-A through USB port
Note: 1. Two temperature & humidity detecting points should be set in every rack; 2. RDU-A only has two DOOR ports, to connect four door status sensors, at least one IRM-S04DIF should be configured; 3. RDU-A only supports connecting one camera		

The RDU-A configuration procedures are as follows:

Step 1: ensure the specific equipment type of each piece of equipment.

- Datamate3000 precision air conditioner belongs to ENP_AC_DME3000 [COM]
- The Adapt UPS belongs to ENP_UPS_ADAPT [SNMP]
- The PDUs belongs to ENP_PDU [COM]
- IRM-S02TH belongs to ENP_ENV_TH [SENSOR]
- IRM-S04DIF belongs to ENP_ENV_4DI [SENSOR]

After the equipment type is ensured, the specific communication port connected with the equipment is also ensured.

Note

When the COM1 port is connected with a Modem, it becomes a dedicated port, you cannot choose it.

Step 2: configure the equipment address.

- The addresses of the SENSOR port and the SNMP port do not need configuration
- The port address of Datamate3000 precision air conditioner can be configured as 1
- The port addresses of the eight PDUs can be configured as 1 ~ 8

Step 3: ensure the specific location of equipment.

- The location of Datamate3000 precision air conditioner can be configured as Room Env
- The locations of the three ADAPT UPS can be configured as Rack1, Rack2 and Rack3
- The eight PDUs are distributed into four racks, so their locations can be configured as Rack1, Rack2, Rack3 and Rack4
- The locations of IRM-S02TH and IRM-S04DIF are Room Env by default

Note

The specific location of equipment can be configured at will.

Step 4: ensure the communication parameters of equipment.

- The communication parameters of Datamate3000 precision air conditioner can be configured as: 19200, n, 8, 1
- The communication parameters of the ADAPT UPS can be configured as: IP address of connected RDU-SIC card: Public: Private. For instance: 10.163.162.145:Pubilc:Private

Meanwhile, users need to set NMS parameters of the RDU-SIC card. Refer to the RDU-SIC card user manual to enter the Web setting page, as shown in Figure 5-3.

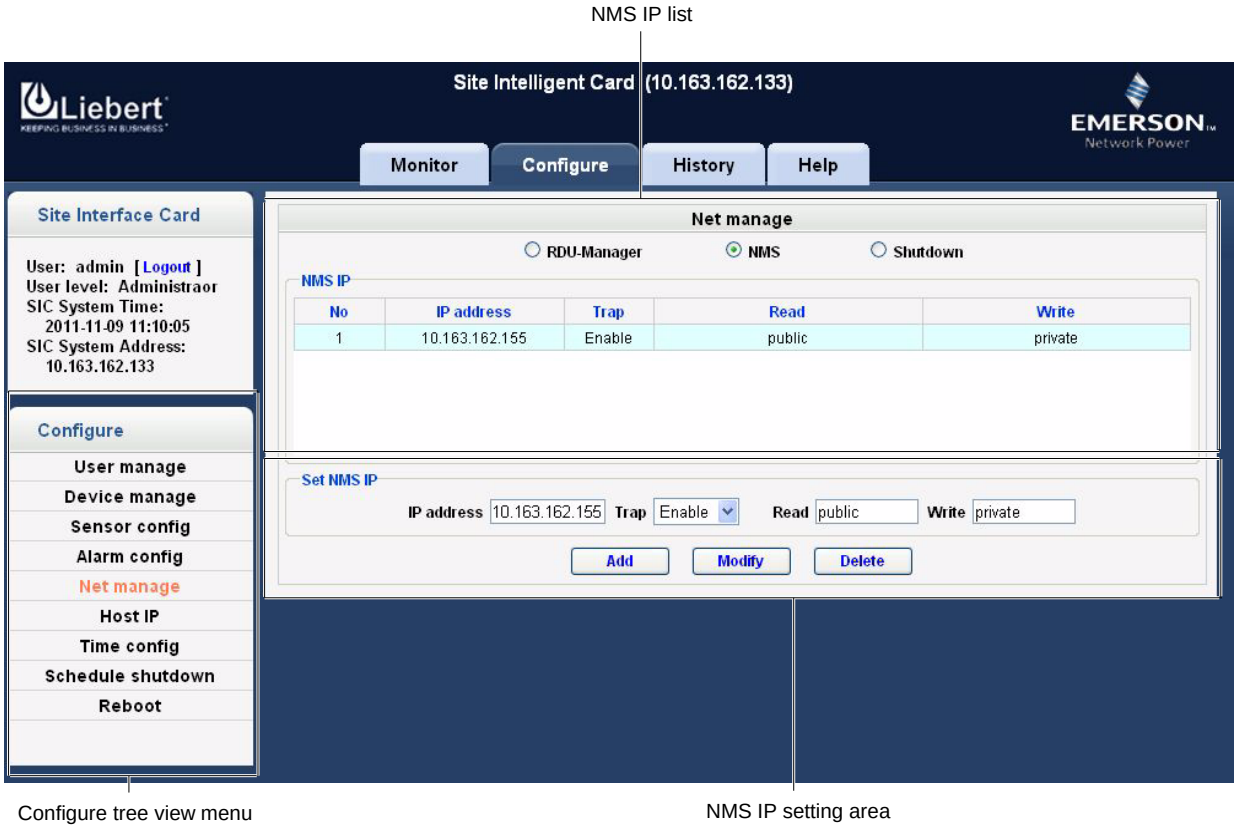


Figure 5-3 Set NMS parameters

On the page shown in Figure 5-3, configure the new NMS IP address, such as '10.163.162.155', and click the **Add** button to complete the configuration.

- The communication parameters of the PDUs can be configured as: 9600, n, 8, 1
- The communication parameters of IRM-S02TH and IRM-S04DIF can be configured as: 9600, n, 8, 1

The detailed configuration parameters are listed in Table 5-3.

Table 5-3 RDU-A configuration Table

Equipment	Type	Name	Port	Address	DIP address	Location	Communication parameter
DataMate3000	ENP_AC_DME3000 [COM]	DME3000	COM2	1	-	Room ENV	19200,n,8,1
UPS ADAPT	ENP_UPS_ADAPT [SNMP]	UPS1	SNMP	-	-	Rack1	10.163.162.145: Pubilc:Private
		UPS2		-		Rack2	10.163.162.146: Pubilc:Private
		UPS3		-		Rack3	10.163.162.147: Pubilc:Private
PDU	ENP_PDU [COM]	PDU1	COM3	1	-	Rack1	9600,n,8,1
		PDU2		2			
		PDU3		3		Rack2	
		PDU4		4			
		PDU5	COM5	5		Rack3	
		PDU6		6			
		PDU7		7		Rack4	
		PDU8		8			

Equipment	Type	Name	Port	Address	DIP address	Location	Communication parameter
IRM-S02TH	ENP_ENV_TH [SENSOR]	Env TH	SENSOR	-	10 11 20 21 30 31 40 41	Room Env	9600,n,8,1
IRM-S04DIF	ENP_ENV_4DI [SENSOR]	Env 4DI	SENSOR	-	A0	Rack1	9600,n,8,1

Step 5: after configuring the parameters above, login RDU-A through Web. Add new device according to the configuration parameters listed in Table 5-3, and refer to *Device Management* in *4.6.5 Device Options* for detailed procedures.

Chapter 6 Maintenance

This chapter expounds the maintenance of RDU-A, including recovering default setting and troubleshooting.

6.1 Recovering Default Setting

Recovering default setting includes recovering RDU-A admin password (default username: rduadmin, password: emerson) and RDU-A IP address (default IP address: 192.168.0.254). You can set them through jumper J70. The setting method is to short connect Pin2 and Pin3 of J70, and reboot RDU-A. The jumper position is shown in Figure 6-1.

Note

After rebooting RDU-A to recover default setting, please short connect pin 1 and pin 2 of jumper J70, or the default setting will be recovered whenever RDU-A is rebooted.

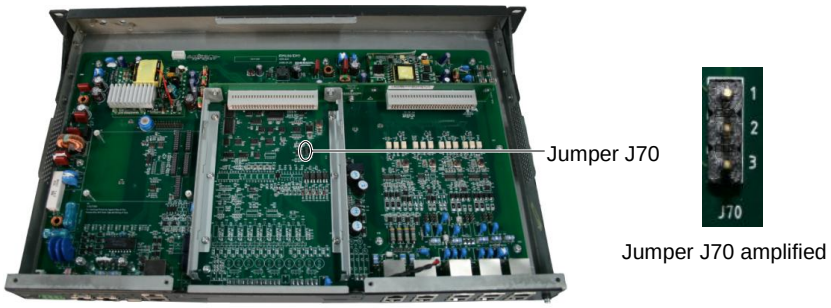


Figure 6-1 Jumper J70

6.2 FAQ

Q1: After RDU-A is powered on, why the power indicator is not on?

A: Please check that the power module is connected correctly, and the RDU-A host is powered on.

Q2: Why does the SENSOR port have no output?

A: Please check that the two routes of output voltage of the power module are both 24Vdc.

Q3: How to deal with that the POWER indicator is not on or the serial port does not work after the IRM-E04COM board is inserted?

A: The POWER indicator of the IRM-E04COM board is not on, please check that the board is inserted correctly and completely; The IRM-E04COM serial port does not work, please check that the board is inserted when the system is powered on, if so, power off the system and then insert the IRM-E04COM board again.

Q4: How to deal with that the communication of COM1 ~ COM3 port is abnormal?

A: Please check that the jumper settings in the RDU-A host are correct, refer to *2.3.1 Set Communication Mode Of COM1 ~ COM3.*

Q5: How to deal with that the communication of COM5 ~ COM8 port is abnormal?

A: Please check that the jumper settings in the IRM-E04COM board are correct, refer to *2.2.1 Set Communication Mode Of COM5 ~ COM8.*

Q6: How to deal with that RELAY1 and RELAY2 cannot control user equipment normally?

A: Check that the phase sequences of user equipment terminals are correct, see Table 1-5 for details.

Q7: How to deal with that there is no access to RDU-A web page?

A: There are three measures to solve the problem:

If the login page doesn't pop up, take the following three procedures:

1. Ensure that the IP address is correct;

2. Ensure that the communication of RDU-A is successful, the methods are as follows:

1) Click **Start→Run**, the page shown in Figure 6-2 pops up.

Figure 6-2 Run page

2) Type 'cmd' in **Open** field, and click **OK**, the page shown in Figure 6-3 pops up. Type 'ping' and IP address in the command line (for instance, 'ping 10.163.162.135') and check whether the communication is successful.

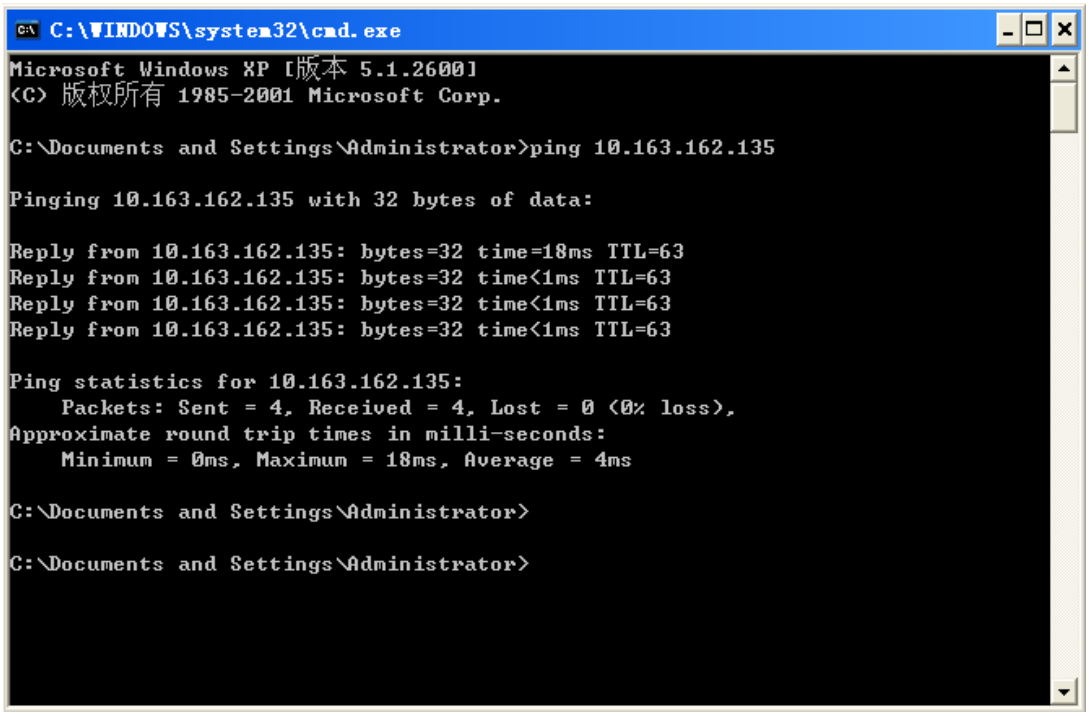

C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [版本 5.1.2600]
(C) 版权所有 1985-2001 Microsoft Corp.
C:\Documents and Settings\Administrator>ping 10.163.162.135
Pinging 10.163.162.135 with 32 bytes of data:
Reply from 10.163.162.135: bytes=32 time=18ms TTL=63
Reply from 10.163.162.135: bytes=32 time<1ms TTL=63
Reply from 10.163.162.135: bytes=32 time<1ms TTL=63
Reply from 10.163.162.135: bytes=32 time<1ms TTL=63
Ping statistics for 10.163.162.135:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 18ms, Average = 4ms
C:\Documents and Settings\Administrator>
C:\Documents and Settings\Administrator>

Figure 6-3 Communication test

3. Check whether a proxy server has been configured.

1) To log in RDU-A, double-click the icon of IE to run the software, click the menus of **Tools→Internet Options** and then choose the **Connections** tab to pop up the page shown in Figure 6-4.

Figure 6-4 Choose connections

2) On the screen as shown in Figure 6-4, click the button **LAN Settings** to pop up the screen as shown in Figure 6-5.

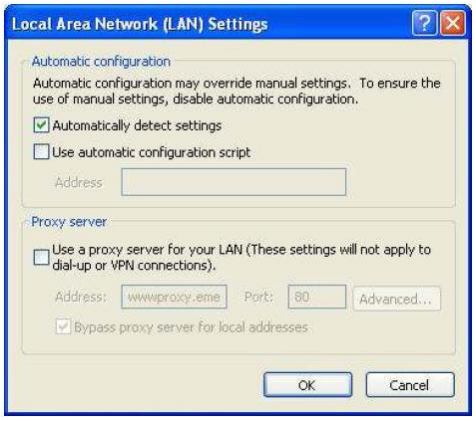


Figure 6-5 LAN setting (Step 2)

3) On the page shown in Figure 6-5, tick **Use a proxy server for your LAN** and click **OK** to finish the LAN setting.

Q8: On the RDU-A login page, after typing username and password correctly, why is there no response?

A: Please check whether the security setting meets the requirement, the procedures are as follows:

1. To log in RDU-A, double-click the icon of IE to run the software, click the menus of **Tools→Internet Options** and then choose the **Security** tab to pop up the page shown in Figure 6-6.

Figure 6-6 Security setting 1

2. On the page shown in Figure 6-6, choose **Local Intranet** and click the **Custom level** button to pop up the page shown in Figure 6-7.

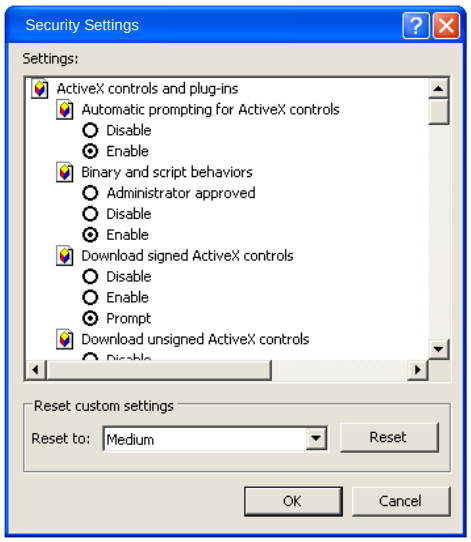


Figure 6-7 Security setting 1

On the page shown in Figure 6-7, do not set **High** for security level. Click the **Reset** button to **Reset custom settings**, and click **OK** to finish the setting.

Q9: How to deal with failure in downloading or uploading files, history alarm, equipment information, history data and log data?

A: 1. Check that the File download has been enabled in the Security Settings of Internet Options of IE, as shown in Figure 6-8.

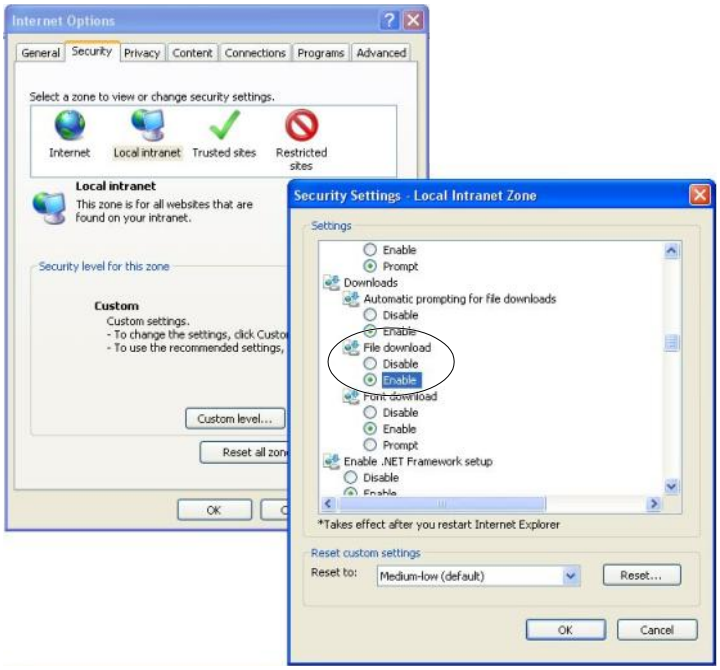


Figure 6-8 Enable file download

2. Check that the **Download Unsigned ActiveX Controls** has been enabled in the Security Settings of Internet Options of IE, as shown in Figure 6-9.

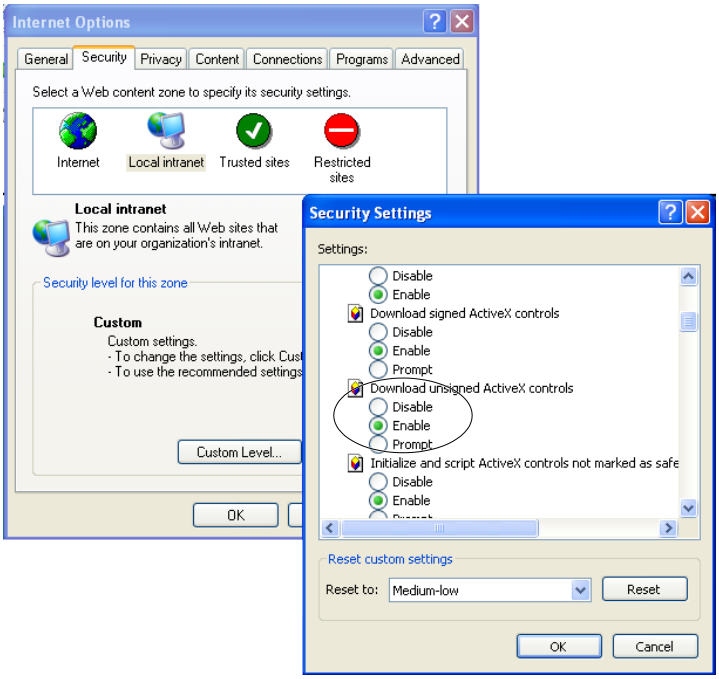


Figure 6-9 Enable ActiveX controls

Q10: How to perform troubleshooting of sensor?

Fault 1: The intelligent sensor has no display, and it cannot be displayed on the RDU-A webpage.

A: Please perform troubleshooting according to the following procedures:

1) Ensure that the intelligent sensor is connected to the SENSOR port of the RDU-A;

2) Check that the connected cable is intact and it is straight network cable, and the connector is intact;

3) Check that the intelligent sensor is normal;

4) Ensure that the sensor address is not 00;

5) If multiple intelligent sensors are connected, ensure that the sensor addresses are not the same, and perform troubleshooting according to procedures 2 and 3 one by one.

Fault 2: The alarm indicator of the intelligent sensor is on.

A: Send the intelligent sensor back to the service center of Emerson local office for repair.

Q11: You have chosen the ocean blue theme, but the page still adopts crystal blue theme while you are viewing the webpage of the RDU-A, how to deal with it?

A: Click the **[User] Logout** button to return the login page, click the icon to choose the ocean blue theme, and log in the system again.

Q12: How to close the sound of IE auto refreshment?

A: Click Start -> Control Panel -> Sounds and Audio Devices, the setting window will pop up, as shown in Figure 6-10.

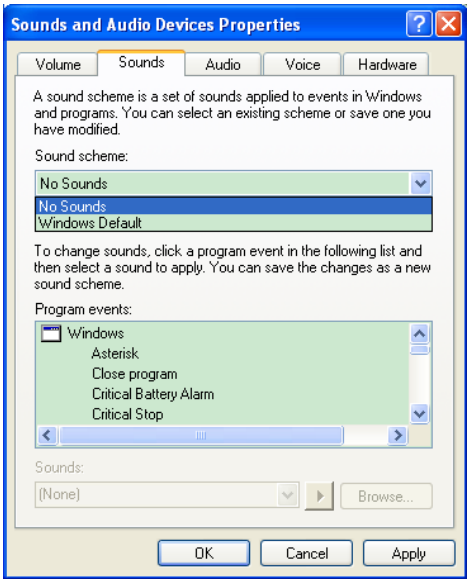


Figure 6-10 Setting window

Select the **Sounds** tab in the setting window, and select 'No Sounds' in the drop-down box of **Sound scheme**, at last, click **OK** to save the setting.

Q13: The RDU-A cannot upload files successfully, including pictures, configuration pack, driver pack and so on, how to deal with it?

1. Add trusted site.

1) Double-click the icon of IE to run the software, click the menus of Tools -> Internet Options and then choose the **Security** tab to pop up the window shown in Figure 6-11.

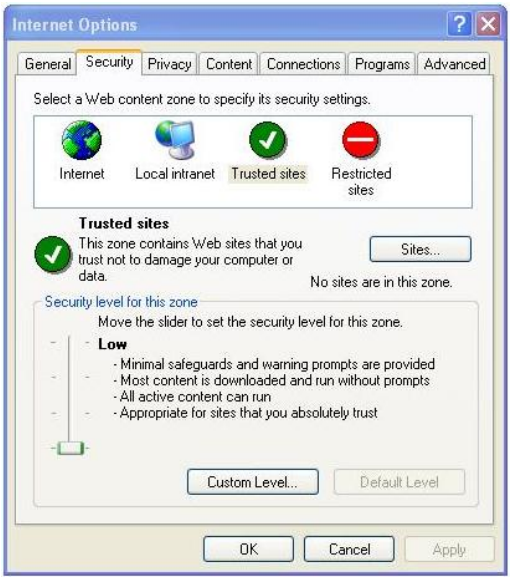


*Figure 6-11 Choosing the **Security** tab*

2) Choose **Trusted sites**, and click the **Sites** button to pop up the window shown in Figure 6-12.

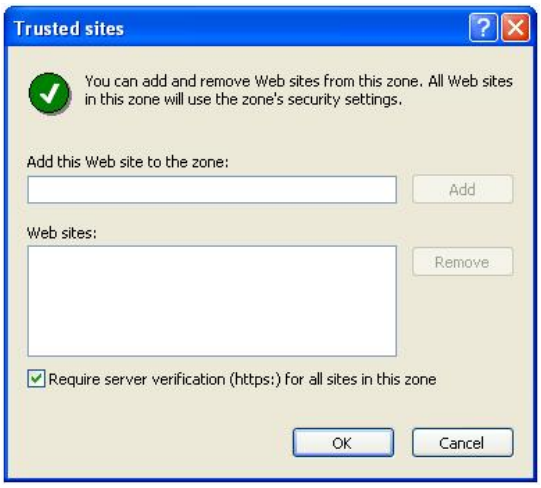

Trusted sites
You can add and remove Web sites from this zone. All Web sites in this zone will use the zone's security settings.
Add this Web site to the zone:
Add
Web sites:
Remove
Require server verification (https:) for all sites in this zone
OK
Cancel

Figure 6-12 Adding trusted site

3) Add the IP address of the RDU-A into the **Web sites** box.

Q14: After an alarm is generated, you do not receive any email or SMS notification; or when the alarm does not finish, the email or SMS notification is less than three times, how to deal with it?

A: Please perform troubleshooting according to the following procedures:

1) Please check that the SMS/Email server configuration is correct, refer to *Alarm Notification* in *4.6.3 Alarm Options*.

2) If you do not receive the SMS notification, please check that the phone is out of service because of overdue payment;

3) If you do not receive the email notification, please click the menu Data & History -> History Log to query the system log and check whether there is a record of failure in sending email. If so, it indicates that the network is busy or the email server communication is busy.

Appendix 1 Abbreviation

AC	Alternating Current
CA	Critical Alarm
DC	Direct Current
DI	Digital Input
IE	Internet Explorer, a Web browser developed by Microsoft@
FAQ	Frequently Asked Questions
FTP	File Transfer Protocol, used to transfer large chunks of data
HTML	Hypertext Mark-Up Language, used to create Web pages
HTTP	Hypertext Transfer Protocol, used to convey HTML
LED	Light Emitting Diode
Linux	A UNIX-like operating system with open source, developed under Free Software Foundation
LLP	Local Language Package
LUI	Local User Interface
MA	Moderate Alarm
NA	No Alarm
LA	Low Alarm

Appendix 2 Standard Configuration List

No.	Item description	Quantity	Unit
1	IRM-U061D RDU-A Intelligent Monitoring Unit	1	EA
2	Master Power,IRMU061DZ1,IRM-U061DR1 power unit, {R5}	1	EA
3	IRM-U061D RDU-A Intelligent Monitoring Unit Installation & Commissioning Manual	1	EA
4	Ordinary Square Pin,4PIN/Single Row/Straight/2.54/5.84/2mm PCB,3A,ROHS	2	EA
5	IRM-U061D RDU-A Intelligent Monitoring Unit User Manual	1	EA
6	Cross Recessed Pan Head Tapping Screws,ST2.9*6.5F,Zinc Electroplating, iridescent yellow,GB845-85,ROHS	2	EA
7	Outsourced Cable Set,IIRMU061DSL7-IRMU061D	1	EA
8	Label Set Or Other,IRMU061D, blank line sequence label	1	EA
9	Outsourced Cable Set,IRMU061DSL2,Distribution Cable for IRMU061DSL2 -ROHS	1	EA
10	IRM-U061D RDU-A Special Cable And Three-Way Connector User Manual	1	EA
11	One port to Two port-8P8C-Unshield-Straight-/mm	1	EA
12	Hanger (big)	2	EA
13	Hanger (small)	1	EA
14	M4*8 screw	6	EA